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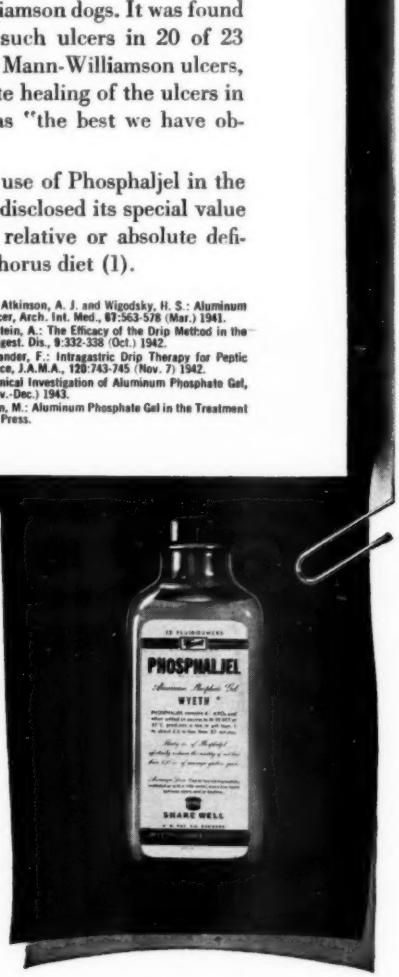

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 27 November, 1944 No. 11

THE ROENTGENOLOGICAL DIAGNOSIS OF SKELETAL DISEASES OF INFANTS AND CHILDREN

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THE Russell D. Carman Lecture of the Radiological Society of Minnesota commemorates the life and work of a great pioneer in roentgenology who came to the Mayo Clinic in 1913 when roentgen diagnosis was still in its infancy. The medical world now appreciates the great strides in the roentgen diagnosis of gastro-intestinal disease, so much of which can be attributed to his keen interest, his untiring investigations and his numerous contributions to roentgen literature. His impress on medical education is reflected in the men whom he trained and who in turn have and are adding to the ever-broadening scope of roentgenological diagnosis. His memory is perpetuated and kept fresh by these annual Russell D. Carman lectures. I regard the invitation to deliver this, the eleventh lecture, as a great honor.

Dr. Carman's contributions and accomplishments have been enumerated in previous lectures and it, therefore, seems fitting to trace the progress made in another branch of roentgenological diagnosis. Since the discovery of the roentgen rays, much has been added to our knowledge of diseases affecting the skeleton in infants and children and roentgenological examination has become a most important aid in clinical diagnosis. Its value to the pediatrician and the practitioner is unquestioned. Advances have been made, both in those conditions in which the skeleton is primarily affected and in those in which it is secondarily involved; in diseases of common occurrence and in those which are infrequently encountered. In the earlier periods of the development of pediatric roentgenology, roentgen findings were largely confined to descriptions of fully developed stages of the various diseases. Soon an appreciation of the value of roentgen diagnosis developed as shown by the efforts to discover the early stages and the late end results, the former being of especial use in the diagnosis of doubtful cases. An effort will be made to discuss some of the more noteworthy contributions to the roentgenological knowledge of skeletal diseases in infants and children. Osteomyelitis, tuberculosis, bone tumors and other surgical conditions will not be included as time will not suffice to include diseases of primary interest to the surgeon only.

In most diseases of infants and children, the pathological changes in the growing long bones occur with the greatest regularity where the two normal processes of ossification take place. These areas are (1) where elongation of the diaphysis, endochondral ossification, occurs and (2) where growth in thickness, endosteal or periosteal ossification occurs. At times different disease processes produce similar changes in the periosteal areas and the diagnosis is dependent on the recognition of the changes going on in the endochondral areas. Likewise in the latter, similar roentgen pictures are produced by different diseases which makes differential diagnosis impossible by the roentgen examination alone. Frequently a combination of the roentgen signs makes possible

From the Roentgen Department of the Children's Hospital of Philadelphia. The Russell D. Carman Memorial Lecture presented at the annual meeting of the Minnesota State Medical Association, Rochester, Minnesota, April 15, 1944.

the diagnosis, as in the case of infantile scurvy where the picture of scorbutic atrophy is a composite one, based on the roentgen signs considered collectively. As our knowledge of the roentgen diagnosis of skeletal disease in children increased, and more conditions producing bone changes were described, signs which were at one time considered pathognomonic were demonstrated in other disease processes. As a result, the word pathognomonic must be used with the greatest care and circumspection.

Vitamin Deficiency Diseases

In the two chief conditions caused by a deficiency of vitamins, rickets and infantile scurvy, the lesions have been described in minute detail. With the increased interest and education of the laity in vitamin deficiency and with the increase in Child Welfare and Health Clinics, the incidence of these diseases has tended toward reduction. This has caused a change in the roentgen picture, especially in infantile scurvy. While receiving in general more vitamin, some children may, nevertheless, develop a deficiency through irregularity of feeding which may not be continuous. Whereas in earlier years cases progressed to an advanced stage with a succession of roentgenographic changes occurring with regularity, many now show a different picture due to fluctuating remissions and relapses that produce synchronous active and healing lesions in the bones. Schmorl as early as 1909 drew attention to the relapsing type of rickets, due to its seasonal incidence.

Rickets

Rickets has been usually divided into the fetal, infantile and late types with the type known as renal rickets included in the last. For a long time the question of the actual occurrence of fetal rickets remained unanswered. Ylppö, one of the earlier workers, who attempted to prove the existence of fetal rickets by roentgenological studies, concluded that in five cases out of fifty-eight premature infants studied, rachitic lesions had developed during intra-uterine life, and, therefore, rickets could be considered of fetal rather than necessarily of postnatal origin. Farrell and Burt[8], in their studies, concluded that recognizable cupping and flaring of the diaphyseal ends of the long bones is sometimes normally present in the long bones of new-born infants and that it could not be considered evidence of fetal rickets. In 1930, Maxwell and Turnbull[13] reported two cases of fetal rickets in children born from mothers who had been suffering from prolonged and untreated osteomalacia. In one of these cases, evidence of fetal rickets was only afforded by the roentgen examination, and in the other, the badly preserved condition of the bones, detracted to some extent from the value of the evidence presented. But in 1932, Maxwell was able to confirm this evidence by an indisputable case which he carefully studied from the clinical side and Turnbull from the pathological side. This last case established beyond doubt the occurrence of rickets or of osteomalacia in the fetus. The fetuses from osteomalacic mothers may show a disturbance of calcification which may be osteomalacic but which cannot be differentiated histologically from that in rickets in young children. The roentgenograms which accompany the papers of these authors show not only cupping of the diaphyseal ends but a distinct fraying-out of the zone of temporary calcification. This change was absent in the cases studied by Farrell and Burt.

Up to the time of the publication of the papers of Eliot[14] and later Davidson and Merritt,[5] the early changes of the rachitic process in the long bones were not recognized with any degree of certainty. They described the early changes and the diagnosis can now be made at a much earlier age than was formerly believed possible. Eliot believes that the following signs are of diagnostic importance in the early diagnosis: (1) cupping, (2) spreading, (3) spur formation, (4) fringing or fraying, (5) stippling. These changes all occur in the endochondral areas. Cupping is an early sign in some bones and not in others. It is a normal finding in infants but becomes exaggerated as rickets develops. It is closely related to spreading, i.e., the appearance in the roentgenogram of the widened diaphyseal ends. Eliot states that cupping is also found in moderate degree in infantile scurvy and in slight degree in the ulna in the very young, often premature, infants, where all the bones are in a state of rapid growth. It is found, also, in osteochondrodystrophy. Spurs may either be straight in line with the cortex at the ends of the diaphyses in which case they project like thorns from the sides or they may bend outward or be irregularly curved. Fraying is the gradual loss of definite outline of the end of the diaphysis. Stippling is of rare occurrence. Periosteal and cortical changes may be shown in the upper end

of the ulna on the side toward the radius due to early deposition of osteoid bone, but the bones must be in complete supination on the film to demonstrate this change.

In the more fully developed cases of rickets, some of the changes found are osteoporosis producing a streaked appearance of the diaphyses, thinning of the cortex with pathological fractures of the shafts, accentuated trabecular markings in the metaphyseal areas, moth-eaten decalcified epiphyseal centers, sometimes barely visible, and in films of excellent soft part detail, swelling of the resting cartilage can be demonstrated.

Late Rickets

Schmorl and Pommer[21,22] by their researches made it clear that rickets and osteomalacia are essentially one and the same pathological condition, the main distinction being the age of the individual. Thus late rickets occupies a position between rickets and osteomalacia, the first occurring in infants and younger children and the second in adults. Late rickets consists of an intermediate group of cases, the lower boundary of which Hess states was set at four years by Schmorl with whose opinion he agrees. At the other extreme, it is more difficult to draw the line of differentiation between rickets and osteomalacia. Under such classification would then be placed the cases which have been reported as juvenile osteomalacia. An essential but extremely difficult point in diagnosis is the exclusion from late rickets of all cases of recrudescence and cases which have in the literature been termed rachitis inveterata.

The roentgenographic appearance is much like that of infantile rickets in many of the reported cases. Generalized osteoporosis, frayed-out appearance of the diaphyseal ends and the epiphyseal centers, coarse trabecular shadows in the metaphyses and bowing are often found. A most important sign is the increased width of the space between the diaphyseal end and the epiphyseal center due to the deposition of osteoid bone at the end of the diaphysis.

Renal Rickets

The condition known as renal rickets has usually been considered a relatively rare one, but recurring reports in the literature indicate that probably it is a more common disease than is generally believed. Price and Davie[17] have divided the roentgenographic changes into two types. The first differs in no essential way from ordinary rickets. The shafts of the long bones retain a reasonably normal density but more or less florid rachitic changes are seen at the diaphyseal ex-

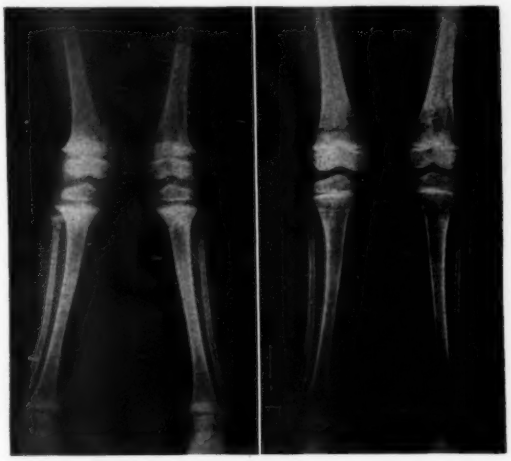

Fig. 1. Late rickets. Note the flaring of the diaphyseal extremities, the increased width of the space between the ends of the diaphyses and the epiphyseal centers of ossification, the fraying out of the zones of temporary calcification and the knock-knee deformity. After treatment, note the dense zones of temporary calcification, the increased density of the shafts and the disappearance of the wide space between the epiphyseal centers and the ends of the diaphyses.

tremities. The second type is unlike the roentgen picture usually found in ordinary rickets. The bones show a generalized osteoporosis. There is a loss of sharp demarcation between the cortex and the medulla. The cupping of the metaphysis is broader and deeper than is usually seen and in the metaphysis there is often a ground-glass, wooly, or moth-eaten appearance with varying degrees of stippling. Sometimes there is an area of subperiosteal erosion extending for a short distance along the diaphysis and the vault of the skull may be considerably thickened. The changes found in this group are similar to those seen in multiple osteitis fibrosa cystica. Collapse of the softened metaphysis with a resultant rotation of the epiphysis and secondary epiphyseal displacements occur, causing gross deformities. Price and Davie[17] believe the changes of this second type are probably to be correlated with parathyroid overactivity, as parathyroid enlargement has been found in many advanced cases of the disease. They regard the resemblance of the skeletal changes to hyperparathyroidism as too striking to be ignored.

No résumé of the contributions to the roentgenological diagnosis of rickets is complete with-

out mention of the work of Park and his co-workers on the correlation of the pathological and roentgenological changes of the rachitic process.

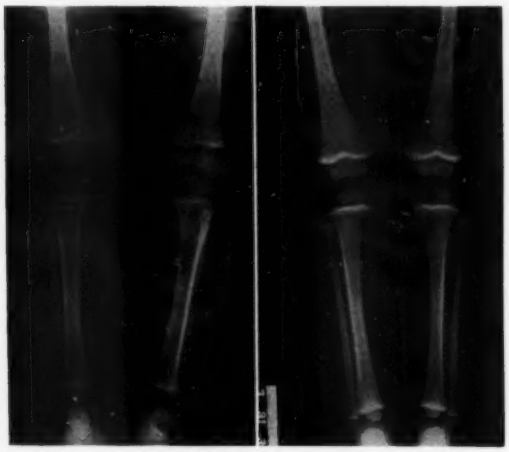

Fig. 2. (*left*) Early scurvy, showing the slight rarefaction and indentation at the distal borders of the diaphyses of the femurs and tibias illustrating the "corner sign." A slight tendency to a ground-glass rarefaction and faint rings about the epiphyseal centers of ossification are also shown.

Fig. 3. (*right*) Lead poisoning. Dense and wide zones of temporary calcification at the ends of the diaphyses illustrating the typical change in lead poisoning.

Infantile Scurvy

Soon after the introduction of the roentgen ray as a diagnostic agent, descriptions of the roentgenographic findings in the long bones in infantile scurvy began to appear. These were largely confined to emphasis on the white line, that is the increased density of the zone of temporary calcification, and to descriptions of the Trümmerfeld zone, the rarefied band or zone of increased density behind the dense zone of temporary calcification. Subperiosteal hemorrhages were also reported by the early observers, and at first some were wrongly diagnosed as bone sarcomas. The contributions of Wimberger[26] (1921) in describing the early changes, and in addition the healing stage, marked a distinct step in the roentgen recognition of the disease. He regarded as early signs the increased density of the zone of temporary calcification, the thinning of the cortex, the atrophy of the distal ends of the diaphyses resembling ground glass, and a dense ring about the epiphyseal centers of ossification. This ring is analogous to the increased density of the zone of temporary calcification at the ends of the diaphyses. In 1932, Kato[8] published an excellent critical review of the roentgen signs of infantile scurvy and emphasized the fact that none of the ten roentgenological signs which had been described, except the subperiosteal hemorrhages, are pathognomonic of scurvy. It cannot be too strongly emphasized that the roentgen appearance of scorbutic atrophy is a composite one and that the diagnosis is based on the signs considered collectively. Other causes of bone atrophy must be eliminated by differential diagnostic methods such as the history and clinical laboratory examinations.

In 1935, Park[15] and his associates published in the Sir Thomas Barlow Birthday Number of the *Archives of Diseases in Children,* a most voluminous and exhaustive study of the early bone changes in infantile scurvy. The early roentgen signs were detected in the lower ends of the diaphyses of the radius, ulna and tibia and in the upper end of the humerus. In the knee joint, the distal end of the femur only showed the lesions when the scorbutic process was well advanced. The upper end of the diaphysis of the tibia also showed changes but it was not as valuable a site for their demonstration as the distal ends of the ulna and radius. In the roentgenogram the changes were the slightest fuzziness of the cortex at the distal outer border of the diaphysis with the slightest rarefaction of the neighboring cancellous tissue. The cortex was so thin in some cases as to be altogether lacking. When the lesion was further developed, the defect became more definite. It then assumed the form of a cleft or crevice just behind the distal border of the diaphysis. In some cases this crevice was so slight that it almost escaped notice. In others it extended a short distance into the substance of the bone or half way across, or it had the appearance in some instances of having been torn away from the shaft of the bone itself. Sometimes instead of a cleft, the outer border of the distal lower end of the diaphysis showed a triangular area of rarefaction. In others, this corner appeared rounded and was thrust beyond the outer end of the distal extremity and was greatly rarefied. Park called this sign "bagging." Others in referring to it have termed it the "corner sign."

In their conclusions it is stated that there are no early signs of scurvy. The slight roentgen changes described enable the diagnosis to be made by roentgen examination of the skeleton somewhat earlier than previously. Braestrup and Chrom[2], in 1940, studied twenty-five cases which

showed low values for ascorbic acid in the plasma, or had insufficiency of the vitamin in their histories, or had sufficient change in their ascorbic acid tolerance. In none of them did they find the sign described by Park. They agree with him that there is a complete absence of parallelism between the duration of symptoms and the degree of bone changes.

Lead Poisoning

Vogt[25], Park[16] and Caffey[3] separately contributed descriptions of the changes in the long bones in children in lead poisoning. The zone of temporary calcification at the diaphyseal end of the long bones is widened and becomes very dense, forming a broad, dense band at the extremity of the shaft. This is caused by a deposition of lead in the bones in this area. Vogt and Aub[24] in analysing the bones chemically found that lead was actually deposited in inverse ratio to calcium. The zones of greatest density in the roentgenogram contained less calcium but four times as much lead as the cortex elsewhere. Phosphorus as reported by Phemister and bismuth as reported by Caffey act in similar fashion. If cessation of ingestion of lead occurs followed by a second period of ingestion, double lines of increased density may be observed at the diaphyseal extremities. In two of Caffey's patients who recovered, the poisoning was found to have left sequelæ in the bones, appearing as transverse lines in the diaphyses and linear rings of density in the ossification centers of epiphyseal cartilages and the carpal bones, similar to those previously regarded as pathognomonic of healed scurvy. Caffey reproduced these roentgenological findings as well as the anatomic changes in young dogs by feeding them lead.

Leukemia

Excellent descriptions of the roentgenographic appearance of the long bones in leukemia in children have appeared during the last two decades. Baty and Vogt[1] drew attention to the fact that while the diagnosis of leukemia is relatively simple when the usual clinical picture is present, the manifestations of the disease are frequently atypical and there may be considerable diagnostic difficulty. Aleukemic leukemia presents the greatest problem. Roentgen examination of the skeleton, in addition to the other clinical and laboratory findings, may be helpful in arriving at the correct diagnosis. According to them, the most constant finding is a narrow transverse zone of diminished density just proximal to the zone of temporary calcification in the ends of the diaphyses of the long bones. This zone varies in bones in which

Fig. 4. Aplastic leukemia. Fusiform swelling of the shafts with marked metaphyseal rarefaction in the long bones.

the growth is most rapid, such as in the lower ends of the tibias and femurs. It seems to become relatively more prominent as the disease progresses. They found this rarefied area in the bones of 70 per cent of the patients examined. It was present in 80 per cent of the cases of myeloid leukemia and in 65 per cent of the cases of lymphoid leukemia.

This zone of rarefaction is similar in location and appearance to the rarefied zone found in infantile scurvy with which it must not be confused. Baty and Vogt also found the same type of rarefaction in cases of severe septicemia in children. They explain its cause as a disturbance of bone growth, probably induced by local interference of the infiltrating leukemic cells. It is also probable that both this interference and the general metabolic dysfunction accompanying leukemia play a part in production of the roentgenographic changes.

In many of the cases of aleukemic leukemia and aplastic leukemia reported, extreme generalized osteoporosis and irregular cortical absorption in the long bones have been found. Accompanying these changes there may be compression of the vertebral bodies and fractures of the long bones. Periosteal infiltration has also been demonstrated in the roentgenogram. This is prone to occur in the aplastic type. In some cases the osteoporosis is confined to the metaphyseal areas and the appearance may simulate neuroblastoma with gen-

eralized miliary metastases. Diffuse granular mottling of the skull occurs in both conditions and there may be separation of the cranial sutures due to increased intracranial pressure. C. H. Smith[23] reported a case of leukopenic myeloid leukemia associated with arthritis. The severe polyarthritis resembled rheumatic fever and the roentgenograms revealed periosteal thickening, cortical erosion and medullary rarefaction. At autopsy there was marked leukemic infiltration in the bones.

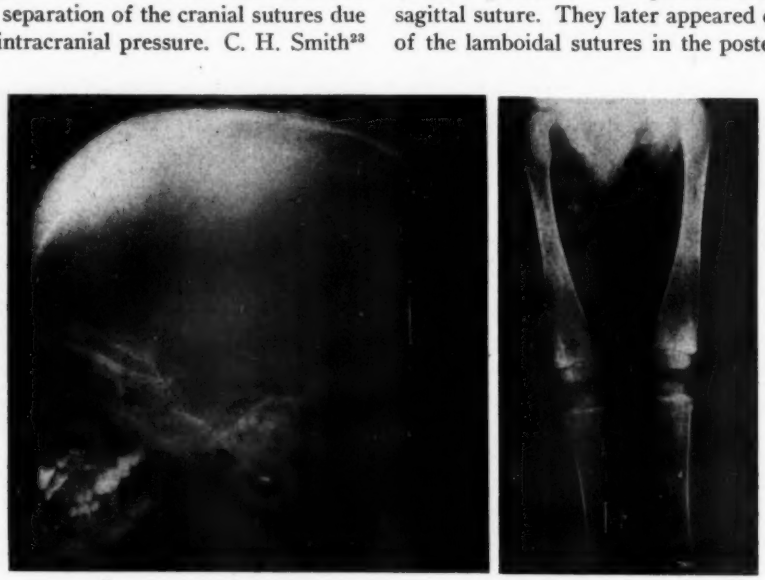

Fig. 5. Typical changes of congenital erythroblastic anemia in the skull. Perpendicular striations with bulging of the outer table of the skull. Marked thinning of the cortex, wide medullary spaces and prominent trabecular markings in the diaphyses with "squaring" of the ends of the femurs and tibias.

In osteosclerosis the bone changes are primary. The osteosclerotic changes gradually crowd out the bone marrow resulting in some patients in secondary blood changes. There may be a severe anemia with an aplastic type of blood picture resembling that seen in aleukemic leukemia. On the other hand as pointed out by Baty, primary changes in aleukemic leukemia with osteoporosis are in the bone marrow. There is leukemic infiltration of the marrow with erosion of the bone by rapidly growing, infiltrating masses of leukemic cells.

Chronic Hemolytic Anemias

The important roentgen changes in congenital erythroblastic anemia were described by Reynolds in 1927. In 1937, Caffey[4] presented a study of twenty-one cases and drew attention to the early lesions. He found the earliest involvement of the skull was a thickening of the lower frontal squamosa. Radial striations developed first in the anterior portion of the parietal bones near the sagittal suture. They later appeared on both sides of the lamboidal sutures in the posterior parietal bones and the anterior portion of the occipital bones. The mid-parietal bone was last affected. Caffey found that in patients of approximately the same age and presenting similar clinical findings, clinically and hematologically marked differences were found in the roentgen changes in the skull although the manifestations in the long bones did not differ greatly. He believed that the skull alone could not be regarded as a reliable criterion for the presence of the disease, nor could it be regarded as an index of the degree of involvement of the remainder of the skeleton.

Fundamentally, the changes in the osseous system are the result of a hyperplastic condition of the marrow which causes decalcification of the trabeculæ and thinning of the cortical bone. In the long bones widening of the medullary canals and cortical atrophy are early shown. This results in an abnormal fulness and rectangular outline of the shafts. As the patients grow older, more marked and heavier trabeculations develop in the shafts of the long bones. The trabeculations become accentuated as the age of the patient increases.

In the later years of life of the patients the bone density increases in degree with a disap-

pearance of the coarse reticulation which previously was present. The cortical bone remains atrophied but the rectangular outline of the long bones, however, persists. The late skeletal lesions are osteosclerotic as compared with the osteoporosis in the earlier ones. Overgrowth of the trabecular bone leads to obliteration of the reticular pattern and finally to osteosclerosis.

Sickle Cell Anemia

Lesions in the skull and long bones similar to those found in congenital erythroblastic anemia have been reported in sickle cell anemia, but at the Children's Hospital no cases have been observed in which the roentgen examination has demonstrated variations as marked and extreme as in the former. They have resembled what might be termed an early roentgenographic stage of erythroblastic anemia. Caffey called attention to coincident rickets, the combination of the two diseases being of likely occurrence due to their prevalence in the colored race.

Coeliac Disease

The significant roentgenographic changes in coeliac disease are generalized osteoporosis, marked thinning of the cortex with softening, bowing and fractures of the long bones, and kyphosis. Of particular interest are the transverse osteoid zones described by Looser which simulate pathological fractures. They usually occur in cases in which the disease is well advanced and they have a tendency to be symmetrically distributed. Transverse striations in the ends of the diaphyses of the long bones are often found.

Xanthomatosis

In 1928 Rowland[19] proved that xanthomatosis was a disease of lipoid metabolic disturbance. The term is applied to a syndrome combining defects in the membranous bones, exophthalmos and diabetes insipidus. This syndrome had been described previously by Hand in 1893, by Schüller in 1915, and Christian in 1919. Rowland defines the condition as a rare, probably familial, constitutional disorder of metabolism, in which a deposition of lipoid mixtures, particularly cholestrol and its ester, takes place, leading to a characteristic hyperplastic reaction in the reticulo-endothelial, or the histiocytic, apparatus. The disease usually occurs early in life but there are also rare adolescent and adult types. In the early childhood form the course of the disease as described by Rowland, is usually a history of good health up to the time of onset, which very often dates from an acute infection. This is followed by exophthal-

Fig. 6. Marked atrophy, thinning of the cortex, dense zones of temporary calcification, transverse striations and a pathological fracture in a case of long-standing coeliac disease.

mos, excessive thirst, irritability, yellowish coloration of the skin and retardation of growth. There may be, also, vague pains throughout the body, sore mouth and loose teeth.

The pathological process producing the symptoms of the disease appears first as masses of foam cells or histiocytes, loaded with fat in the tissues surrounding the small blood vessels. This is followed by granuloma-like connective tissue accumulations and finally by marked fibrosis and foreign body giant cell reaction. The massive

growth of foam cells in the marrow spaces produces atrophy and degeneration of the bone trabeculæ and the cortex. At autopsy the bones are soft and cheeselike consistency. The polyuria

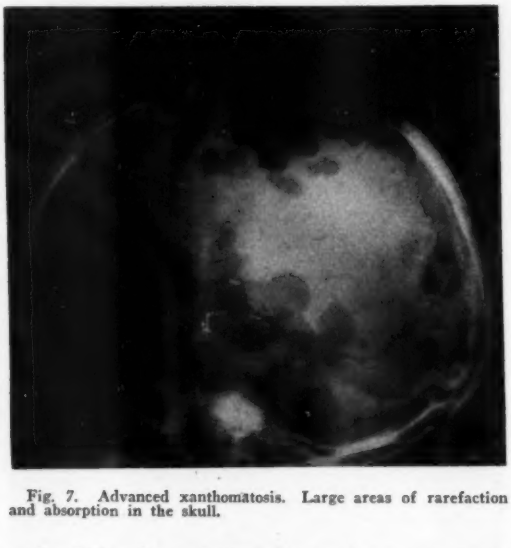

Fig. 7. Advanced xanthomatosis. Large areas of rarefaction and absorption in the skull.

and polydypsia are believed to be due to the result of pressure on, or direct invasion of, the hypophysis and tuber cinereum by the lipoid masses. The exophthalmos is probably due to lipoid infiltration of the retrobulbar space, although Sosman believes it is dependent upon destruction of the roof of the orbit by the lipoid infiltration.

Spontaneous remissions may occur and if so are associated with an increase in the bone density of affected areas. The membraneous flat bones are especially involved and also the ribs, clavicles and vertebral bodies. Bone thickening is rare in the acute form of the disease but occurs sometimes in the adult form. The typical erosions in the skull have distinct and clear-cut but iregular margins. Usually the inner table of the skull is early eroded, perforation of the outer table occurring at a later stage. Sometimes, however, the outer table may be first affected. In these cases, soft tumorlike masses may be felt very early over the eroded areas.

Gaucher's Disease

Gaucher's disease is defined as a metabolic condition due to disturbed lipoid metabolism in which lipoid kerasin accumulates in the reticulo-endothelial cells. Splenomegaly, hepatomegaly and lymphadenopathy usually appear early in the course of the disease on account of the lipoid infiltration of these organs. At times, the osseous system also is involved, and the bone and joint symptoms may overshadow the visceral manifestations.

Junghagen[7] describes the following changes in Gaucher's disease: (1) well-marked general osteoporosis; (2) porous and trabeculated spongiosa; (3) destruction of the spongiosa with formation of large or small worm-eaten defects; (4) thinning of the cortex and widening of the bones, especially marked in the lower ends of the femurs; (5) compression of the diseased bones by the weight of the body.

Reiss and Kato[18] state that by roentgenologic examination of the long bones and the spine in Gaucher's disease, a large amount of information can be obtained which offers aid in the antemortem diagnosis of the condition. In addition to the signs above mentioned, they drew attention to the thinning of the cortex of the lower ends of the femurs with the flaring increase in width resembling an Erlenmeyer flask. They found it so often in recorded cases that, properly correlated with other physical findings, it is a diagnostic sign of the disease. In our experience it is found in other blood dyscrasias.

Roentgenographic changes also appear very often in the head and neck of the femur. These are extensive areas of rarefaction and marked osteoporosis intermingled with areas of condensation. Pathologic fracture of the neck may occur. The appearance of the hip as seen in the roentgenogram may simulate the changes seen in chronic osteomyelitis, or sometimes the scattered areas of rarefaction and condensation in the metaphysis of the neck with widening and thickening may resemble Perthe's disease, or again, there may be a resemblance to tuberculous arthritis. In advanced cases the vertebral bodies may assume a wedge or diamond shape with occasional compression fractures.

Congenital Syphilis

During the last two decades, many excellent contributions have been made to the knowledge of the roentgen diagnosis of congenital syphilis, notably those of McLean[9,10,11,12], Park and others. Of the many manifestations of syphilis in infants and children, probably osteochondritis is the most interesting. This condition was described fully by

Wegner from the pathologic standpoint and his descriptions of the three stages of the disease occurring at the diaphyso-epiphyseal junction of the long bones can be traced and recognized in the roentgenogram. Osteochondritis is seen either at birth or shortly thereafter. It may be present even if a negative Wassermann reaction occurs in the infant. In the first stage the zone of temporary calcification at the very extremity of the diaphysis is increased in width and density. It must be remembered that this is not pathognomonic of congenital syphilis but occurs also in other diseases. The resting cartilage of the epiphysis becomes swollen and in roentgenograms of good soft part detail this feature can be recognized. Very slight roughening of the epiphyseal side of the zone of temporary calcification occurs, this being due to the beginning of the so-called saw-tooth margin. Ossification of the calcified spongiosa is decreased except around the fully developed blood vessels, and the result is a beginning rarefaction described by McLean as the metaphyseal rarefaction which later becomes very prominent.

As the disease progresses, the roughened border becomes more easily discernible in the roentgenogram and the metaphyseal rarefaction likewise becomes more pronounced. The zone of temporary calcification becomes wider and denser than in the first stage. The resting cartilage of the epiphysis swells to a greater degree. In some cases, a second band of increased density is seen on the diaphyseal side of the zone of temporary calcification within the area of metaphyseal rarefaction, producing an appearance simulating a second zone of temporary calcification.

In the advanced stage all these changes become much more marked and in severe cases almost complete disintegration of the zone of temporary calcification may occur. Epiphyseal separations develop, although these should properly be called diaphyseal infractions as the line of cleavage occurs on the diaphyseal side of the zone of temporary calcification. Where these occur the pseudoparalysis of Parrot is usually noted on clinical examination.

In severe and fulminating infection, the entire diaphysis becomes involved resembling very much the changes seen in pyogenic osteomyelitis. Baetjer and Waters called attention to the diagnostic importance of punched-out areas of rarefaction situated near the zone of temporary calcification. These are found especially in the milder cases.

In almost all cases, periostitis of varying degree accompanies osteochondritis. McLean has described the types of periosteal reaction as follows:

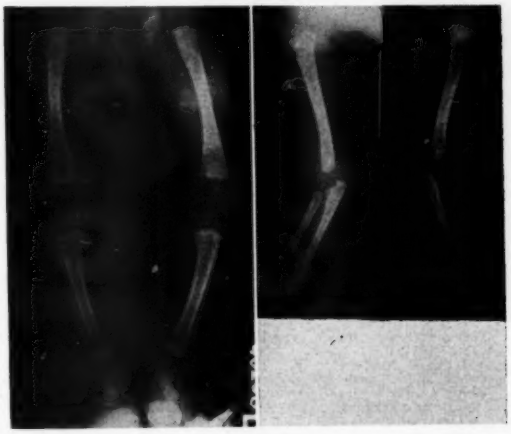

Fig. 8. Congenital syphilis. Slight periosteal reaction, barely visible, along the shafts of the femurs and tibias. Double zones of temporary calcification. Beginning metaphyseal rarefaction.

1. Periosteal thickening which occurs in an intact shaft independent of the lesions in the metaphysis, generally thickest in the middle of the shaft.

2. A supportive or healing type which is found over any break in the cortex of the shaft.

3. Ossifying periostitis or the hypertrophic osteoporosis of Péhu which is the least common of all the types and is characterized by a tremendous thickening of the entire shaft of the bones, due to a series of enveloping coatlike layers of newly formed bone which are separated from the shaft and from each other by a thin layer of spongy substance.

It is impossible to make a diagnosis of syphilitic periostitis without the presence of changes of osteochondritis or a positive Wassermann reaction, as periosteal reactions occur in rickets and other conditions.

Conclusion

Within the time allotted for this lecture it is impossible to cover all the diseases of infants and children occurring in the practice of pediatrics in which the skeleton is affected. Those discussed will serve to emphasize the importance of the

roentgen examination of the skeleton and will serve, too, to demonstrate the progress and advances made in the roentgen diagnosis of these conditions during the last two decades.

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LOCAL ANESTHESIA IN GENERAL PRACTICE

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THE number of operations which a physician can do under local anesthesia depends largely on his personal qualifications. Many persons have the mistaken idea that the method requires no special study or knowledge of its technique of application and that every doctor is prepared to use it successfully. On the other hand the efficient use of local anesthesia depends primarily upon the training and knowledge of the operator, his experience in its use, his willingness to master its details and in no small measure upon his disposition.

Indications

1. Often in general practice especially in rural communities one is confronted with the necessity of performing operations, both minor and major, without adequate assistants or a trained anesthetist. Local anesthesia lends itself admirably if the operator himself can produce a satisfactory analgesia.

2. In office practice and in industrial accidents, local anesthesia is almost indispensable.

3. The treatment of fractures of the extremities is readily accomplished with profound muscular relaxation by means of local anesthesia.

4. In tendon suture, traction on the distal divided end determines definitely its function and the proximal end can be identified by the voluntary effort of the patient.

5. Böhler and others have called attention to the merit of local anesthesia by the injection for painful sprains, painful nerves and lame backs.

6. Local anesthesia is often found to be of great value in the substandard risks of heart disease, the aged, toxemias, et cetera.

7. Crile used local anesthesia in conjunction with nitrous oxide; Farr with narcotics; and we have used it many times to reinforce an incomplete or waning spinal anesthesia. In prolonged operations it is often impossible to tell when the effect of spinal anesthesia is lost.

The successful application of local anesthesia demands a knowledge of its technique of applica-

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tion, its rules of safety and of anatomy. Proficiency increases with practice and confidence. Sufficient quantities of a suitable solution must be placed in contact with sensory nerves for an adequate length of time to interrupt afferent impulses. Local anesthesia also demands a higher degree of surgical technique expressed by adequate exposure and freedom from trauma which unquestionably contributes to freedom from shock and from many untoward postoperative complications.

The drugs in most common use are nupercain, cocain, beta eucain, alypin, novocain, quinine and urea, and alcohol. They vary greatly in degree of toxicity and efficiency. Nupercain and cocain are the most toxic and like quinine and urea and alcohol should be used for specific purposes. Novocain, because of its efficiency and low degree of toxicity, is the drug in almost universal use. The employment of a weak solution permits the use of many times its toxic dose with safety because of a delayed rate of absorption. Adrenalin added to the solution further delays absorption and prolongs the duration of anesthesia. Its use, however, is contraindicated in a member with a terminal circulation such as the finger or penis because of the danger of an ischemic gangrene. Adrenalin should be used cautiously or not at all in the presence of hyperthyroidism or hypertension.

Methods of Application

1. Topical
2. Infiltration
3. Regional
   - (a) Intraneural
   - (b) Paraneural
   - (c) Intravenous } Too dangerous for common use
   - (d) Intra arterial } Too dangerous for common use
   - (e) Field block
   - (f) Combined infiltration with circumferential infiltration block.

Intraneural and paraneural injections or nerve block require a profound knowledge of anatomy of the nervous system and an extensive experience. On the other hand, infiltration with infiltration (field block) block give the greatest percentage of success.

The strength of novocain solutions most applicable to general use are 0.5 to 1 per cent to which 1 to 3 minims (most often 2 minims) of adrenalin solution 1/1000 has been added. To readily prepare a 1 per cent solution for emergency use the writer carries in his medical bag papers containing 1.0 gram of novocain crystals. These crystals have the advantage of not spilling and do not freeze in winter. The crystals are added to 100 c.c. of tap water and boiled. Sterile adrenalin solution is conveniently obtained in small ampoules for hypodermic use. Syringes must be of good quality with well-fitting fine needles 0.5 inch to 4 inches in length.

Preliminary narcotics should be given with the idea of minimizing anxiety rather than for the relief of pain.

It is essential that only the first skin wheal should be felt, that subsequent wheals should be made from beneath the skin and that the solution be flowing from the needle as it advances. Safety demands that the point of the needle must always be in motion when the novocain solution is running into the tissues lest an intravenous dose, which is the most toxic, be given. In the case of nerve blocking where the needle point remains stationary the syringe must be detached or the needle aspirated.

In abdominal surgery, infiltration and field block permit a painless incision with negative intra-abdominal pressure equal in most instances to that produced by spinal anesthesia but immediately the abdomen is entered one must be prepared to deal with the innervation supplied by the splanchnic nerves. Anterior splanchnic nerve block when properly applied will permit surgical attack of practically any organ, providing, of course, that the pathological process permits its application.

(Technique was demonstrated by lantern slides.)

DANGERS OF HOSPITALIZATION IN MATERNITY CARE

The rapid increase of hospitalization for maternity care has brought with it a bitter corollary. Many of the small hospitals in rural areas and country towns are not fit for human habitation, to put it in plain English. The statement issued by the American Hospital Association a number of years ago that *"a poorly managed, poorly equipped hospital is the most dangerous place in which to have a baby"* still holds true. Many of the small hospitals in big cities as well as in rural areas are in this class. A number of the experts point out that the existing standards for hospital care, widely publicized throughout the country, are not really good enough. It is found that in many communities the hospitals which meet these standards are not providing the brand of obstetric care safe for mother and baby.

Local health departments should draw up high standards for maternity hospitals within their jurisdictions, see that they are enforced and the people taught to go only to the hospitals that meet the health department standards. *Briefs*, Maternity Center Assn., June, 1944.

INTRAVENOUS ANESTHESIA

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THE intravenous administration of drugs in conduct of anesthesia has led to great advances toward perfection. No drug yet found helpful in anesthesiology, and suitable for intravenous use, has closely approached this perfection. Perhaps a more perfect drug will yet emerge, or perhaps combined use of some we now know will nearly reach this goal. In the meantime let us make full use of the good qualities of those we now have and avoid using them for unsuitable purposes.

A backward glance at the purposes of anesthesia will give us something upon which to hang our estimates of what we can best do with agents now available for intravenous use.

The purpose of anesthesia is twofold: (1) to spare the patient the pain or discomfort of the surgical procedure, even to make him unaware of it; and (2) to produce whatever degree of muscular relaxation the surgeon needs in each instance, to facilitate operative procedures.

The first purpose I believe may be satisfied for a large number of patients, in a large number of surgical procedures, with well administered, local anesthesia or regional block including spinal block. For many other people and in many other procedures, without unconsciousness, there is not sufficient unawareness for their comfort, either mental or physical or both. It may be only a matter of mental pictures that will not down, or operating room sounds that cannot be erased, or physical discomfort due to lying motionless on an unyielding surface. If unconsciousness is needed or helpful, the patient should have it. Vocal anesthesia, an attempt to declare that the patient is not uncomfortable though he says he is, belongs to the Dark Ages, but of course anyone knows that tactful conversation and helpful service can do very much to assuage restlessness and some discomfort. General anesthesia provides unawareness through unconsciousness.

The second purpose, that of relaxation, has two physiologic factors to overcome; the activity of the reflex arc and the matter of normal muscular tone. The reflex arc may be interrupted at any point, either on the sensory afferent side or on the motor efferent side. Muscle tone must be abolished by blocking the efferent supply somewhere between the brain or spinal cord and the muscle. Local or block anesthesia, properly applied in regions where such block is practical, abolishes both reflexes and muscle tone. Suitable general anesthetic agents in sufficient concentration block reflex arcs and abolish muscle tone. The various anesthetic agents and methods differ a good deal in their efficiencies and modes of attack upon these physiologic factors. In addition each one exacts a physiologic cost for the specific results obtained. In employing any of them in any instance one should be critical that the best bargain possible will be obtained for the cost that is likely to be imposed.

Now what about the accomplishments of intravenously administered drugs in meeting all of the above indications?

For the uneasiness, fear, restlessness and minor discomforts of the patient under local or spinal anesthesia, especially if it seems unnecessary or undesirable that he be asleep, the outstanding remedy is intravenous morphine. The dose is given very slowly until relief is obtained or until respiration becomes too slow. I recall vividly a rather small old lady in her seventies who was having an eye operation under retrobulbar block which was obviously effective. It was needed that she coöperate by looking in different directions as desired. She was restless, shifting on the table, and entirely uncoöperative. She received one-third grain of morphine intravenously over a period of four minutes and became quiet, entirely coöperative and responded perfectly to questions during the remaining twenty-five minutes of the operation. One could never have known the suitable dose for her without giving it intravenously. Many a patient with not only restlessness but slight pain toward the end of a procedure under spinal anesthesia is spared more radical treatment by receiving intravenous morphine.

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This is also most useful if the patient is unprepared for, or distressed by, the use of the needles for local anesthesia, or is not sufficiently sedated for smooth and quick induction of general anesthesia. During the induction of anesthesia with an intravenous barbiturate, if the required dose seems to be waxing unusually large it should be intermitted by intravenous morphine, grain one-sixth to one-fourth. This will spare a large amount of the barbiturate and the total duration of sleep will actually be shortened.

Morphine has always been recognized as a most excellent analgesic and mental quieter for most people without in itself producing sleep except by very large doses. As anesthetists we use it for these characteristics.

Sodium pentothal is at present the outstanding intravenous anesthetic. I believe that no other one now available has characteristics enough better to warrant its preference.

Outstandingly sodium pentothal is a beautiful hypnotic, producing sleep which is incomparable in pleasantness both as it comes on and as it vanishes. All people like the sensation so much that there is a great demand for it even for all types of surgery. It is very effective in quieting states of mental excitement and confusion. However, an unusually large dose for anesthesia, with prolonged effect, may itself be followed by prolonged restlessness and even delirium.

Sodium pentothal practically never causes nausea and tends to prevent it when it might be expected from other causes.

This drug is also efficient in controlling convulsive and muscular hyperactive states of central origin, apparently by sedating the motor areas. A parallel effect is the production of seemingly good relaxation, with the removal of the stimulus for tone from the brain.

Amplitude and sometimes rate of respiration is considerably depressed, apparently by depression of the respiratory center.

All of the effects of sodium pentothal seem to be upon the brain rather than upon any peripheral nervous mechanism.

It is a very poor analgesic. It relieves the sensation of pain only by sleep, in contrast to such drugs as morphine, acetphenetidin, acetanilid, and even to some extent aspirin, which are analgesics much more than hypnotics.

Sodium pentothal leaves pain pathways and reflex arcs wide open. Active muscular movements occur in response to stimuli, especially those applied to the skin and to the pharynx, unless very large doses are administered. Therefore the relaxation referred to above is more apparent than real, for the moment the patient is stimulated the muscles fly into action.

The effect of anesthetic doses of the barbiturates upon the heart, as clearly demonstrated by Visscher,[6,7,8,9] is to lower the minute-volume output.

With the above outline of anesthetic and surgical requirements and the clinical effects of sodium pentothal, one should be able to define pretty clearly the uses for which the drug is suitable and the hindrances which contraindicate its use either completely or relatively.

The greatest contraindication I believe is cardiac decompensation and the only immediate deaths of which I have personally known have been such cases. If the heart is using its full capacity without reserve to maintain life, and the minute-volume is then lessened, the result is unfavorable. There are other anesthetics which do not do this to the heart.

Any condition which lessens the freedom of the airway contraindicates pentothal at least relatively and makes special measures for maintenance of an open airway necessary because of the depression of the respiratory center. Surgery and manipulation in and about the pharynx and larynx also is a relative contraindication. But sometimes there is no better solution for the problem and it must be met by using pentothal with as little disadvantage as possible. If one is adroit, an intratracheal tube may be introduced under pentothal, or this may be accomplished by using cyclopropane or nitrous oxide or ethylene with ether. Then having established the intratracheal tube one can continue with the combined use of pentothal and nitrous oxide with 30 to 50 per cent oxygen. This makes it possible to use the cautery or high frequency which is so often necessary in this region.

Nitrous oxide is a fairly good analgesic and helps considerably in making up for the deficiencies of pentothal. It lessens by a good deal the amount of pentothal required and should be established as almost a routine adjuvant for that reason.

The outstanding occasions for the use of pentothal are still the relatively short procedures which are not greatly stimulating and for which relaxa-

tion is not required. The typical best use of the drug is such that light anesthesia is maintained and the routine indication for more injection is some slight muscular movement. The great bulk of war surgery comes in this category and a large quantity of pentothal is used in Army and Navy hospitals. As far as I know they do not use it for intrathoracic or abdominal surgery.

The next great field of usefulness is for cases in which analgesia and relaxation is obtained by spinal anesthesia or good local infiltration or nerve block. Pentothal is then used only to provide unconsciousness and relief from weariness, nausea and other unpleasant accompaniments. This is a very worthy function indeed.

Minor vaginal work, diagnostic dilatation and curretage and transurethral surgery have provided the greatest use for pentothal and it seems to satisfy the needs of such work very well.

Because of the pleasantness of induction and awakening and the relative absence of anesthetic-produced shock as compared with ether, there has been a great tendency in some groups to use pentothal for abdominal surgery. This can be helpful if the surgeon thoroughly understands its limitations and its possible untoward effects and is willing to work accordingly. There is no argument against its use with spinal anesthesia. If the surgeon or the anesthetist will use local anesthesia freely and well to supply the analgesic effect and help with the relaxation, pentothal will supplement this beautifully and help to make up for any deficiencies the former may have. Even then the surgeon must be willing to get along with only moderate relaxation and manage his surgery accordingly. If the surgeon decides upon pentothal anesthesia and still calls for relaxation like that of ether or spinal anesthesia, the anesthetist is driven into the administration of overdosage, the patient then sleeps many hours, is much depressed, there is a high incidence of pulmonary atelectasis and other complications. This is exploiting the use of a good drug for an unsuitable purpose and can do only harm.

Pentothal is best used in 2.5 per cent solution. No definite or even approximate amount can be stated as that proper for induction. It should be injected slowly, about 1 c.c. each three or four seconds until unconsciousness arrives and then in 1 or 2 c.c. increments as indicated. A solution may be kept in the syringe for several days. Discoloration or precipitation have been the only good reasons we have found for discarding it.

Inasmuch as the subject of this symposium is "anesthesia in general practice," special words should be spoken regarding the use of pentothal for anesthesia in the physician's office. First, it should never be administered unless some person is present who is capable of properly holding the patient's jaw forward to insure an open airway. Second, it is doubtful whether it should be administered unless some good means of administering oxygen and artificial respiration is available, and one should exercise especial care that anesthesia is induced so slowly that respiratory arrest will certainly not occur. Thirdly, and no less important, is the post-anesthetic care of the patient. The patient may wake rather quickly and seem to be fully recovered so that he is able to answer questions very sensibly. It takes a much longer time, however, for him to develop accurate physical judgment and coördination. He should be kept in the office for a long enough time, or if he leaves the office he should go under the care of some person who will surely not let him get into difficulties, because he will for a long time be unable to judge speeds or distances such as the speed of an oncoming car, the length of time that it will take him to cross the street, the depth of a curbstone, or the breadth of a gutter. Many a physician has gotten himself and his patient into serious difficulty by allowing his patient to leave his office too soon.

In speaking of intravenous drugs in anesthesiology today one must not neglect to mention curare. This drug, which was used by South American Indians to poison their arrows, has now been purified and standardized. Its first reported use in anesthesia was by Griffith[3,4] in Montreal. It has since been reported largely by Cullen[1,2,5] at the University of Iowa and others. Its action is upon the neuro-muscular junction and it produces flaccid relaxation in approximately one minute after intravenous injection. It is used for this purpose in conjunction with light general anesthesia of any type. Cyclopropane seems to be its best co-worker but it may be used with ethylene or with light sodium pentothal. If with the latter, one must be especially careful that there is no respiratory depression before the curare is given.

The dose is from 40 to 100 milligrams depending upon the size and vigor of the patient and the depth of the general anesthesia. It may need

to be repeated in from 20 to 90 minutes. The intercostals are paralyzed in producing relaxation of the abdominal muscles, as they are with any of the general anesthetics. If too large a dose is given the diaphragm will also be paralyzed and artificial respiration with the anesthetic bag will have to be used until recovery takes place. Prostigmine is the antidote. Curare is not an anesthetic. It only produces relaxation. It is a very helpful adjuvant. It saves the patient a great deal of general anesthetic and leaves no after effect. I believe it should never be used unless the anesthetist is sure that the mask can be made to fit tightly and the airway can be kept fully open so that artificial respiration can be done effectively if need be. In fact, artificial respiration with the bag should be actually tried before the curare is given. Curare is effective in relieving persistent laryngospasm which is one of the anesthetist's great antagonists. If other forms of respiratory obstruction can be ruled out but laryngospasm exists, curare may be used.

Curare is not a cure-all, If the surgeon's difficulty in exposure is due to rigid lower ribs or deep narrow pelvis, but the muscles are loose then curare will not help. If the difficulty is that of too active breathing or a bouncing abdomen because of partial obstruction or carbon dioxide accumulation, then of course the trouble must be corrected by adjusting the inhalation technique, not by blindly adding curare. In any case, however, with other difficulties controlled as best they may be and anesthesia maintained in a light surgical plane, curare will provide the needed relaxation. It is undoubtedly destined to supplant much of our spinal anesthesia and very deep general anesthesia.

An interesting thing is that patients who receive this type of anesthesia treatment do so well that one wonders whether Crile and others were right in their belief that the afferent pathway must be absolutely blocked to avoid brain trauma and shock.

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ANESTHESIA AND BREATHING

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TO embrace the new solely because it is new is false doctrine. To discard the old solely because it is old may be equally unwise.

The first clinical anesthetic I was privileged to administer thirty-five years ago gave as great satisfaction to patient and surgeon as has any that I have administered during the past year. It consisted in dropping chloroform upon a clean handkerchief draped over the index finger of my left hand held above the nose of a husky middle-aged farmer. He had broken his thigh and had been moved to a bed in the farmhouse. The drops were regulated under the instruction of the farmer's family physician—instructions made very explicit for the benefit of a green and inexperienced prospective medical student. The induction was not unpleasant for the patient; it was tranquil for me to observe; and the relaxation was all that could be desired for the alignment of the misplaced fragments of the femur. Recovery took place as I continued to sit beside the bed supporting the patient's chin while the physician packed his bag and visited with the family. With a less perfect first experience perhaps I would now be specializing in dermatology.

What might have happened on that day to spoil my pride and pleasant memory of the occasion?

Had not each word that was said been most carefully chosen, had not each move that was

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made been most carefully supervised by the physician, as he appeared to be arranging his splints and bandages, trouble could have supervened at any time during the administration. By an ill-advised remark the tranquil faith that all was well might have been destroyed. By too rapid or uneven an increase in the number of drops of chloroform falling upon the handkerchief, irritation, coughing, mucous secretion, breath holding, vomiting or adduction of the vocal cords might have occurred. By too tight an application of the handkerchief about the face or by the use of too thick material, movement of atmosphere through the cloth and vaporization of the agent might have been impeded. By continuing too long, the rapid dropping necessary finally to produce profound relaxation of the muscles of the thigh, breathing might have become shallow or inefficient or have ceased altogether. After the administration was finished, failing to support the chin until muscular relaxation had passed, obstructed breathing might have impeded the exhalation of chloroform and thus prolonged recovery.

With such a happy demonstration, so early in my personal experience, of the ideal effects which can, under certain conditions, be produced by chloroform, why, I wonder, did I for many years fail to recognize the importance of the mechanical and incidental by-effects of anesthetic drugs? In my second year of medical study, it was demonstrated that chloroform was an ideal agent with which to poison the liver. That it was capable of serious interference with cardiac automaticity was proven beyond doubt. Its capacity to stop the heart's action was made clear. I was taught to believe that these toxic properties of chloroform made its use justifiable evidence of criminal practice. I steered clear of possible legal entanglements.

During the intervening years and a reasonably extensive experience with many other agents which produce general anesthesia and local analgesia, I have come gradually to realize two facts: the first that relief from pain is purchased always at a price, and the second, that the price in both morbidity and mortality does not greatly differ, whatever the agent or agents used. The mechanism by which damage is done varies with different drugs, but the price in morbidity and mortality is relatively the same. Regardless of drugs used, about one patient in every thousand subjected to surgical operations in our modern hospitals dies before leaving the operating room. In evaluating the cause of death in these cases, anesthesia plays at least some part in over half of them. A great many more than one in every thousand have the severity of their postoperative period increased, and in some cases with death the final result. Some of these must be laid at the door of anesthesia.

It is my purpose to discuss what appears to be the cause of a major portion of this cost to which our patients are subjected when we bring them comfort. For the price is exacted in wards and in the bedroom as well as in the surgical pavillion. It is exacted from the patient who suffers from a painful illness or injury as well as from the one who is subjected to a surgical operation. No matter which of the dozens of available drugs may be administered for the relief of pain nor in what combinations, the price of peace, the cost of comfort, is always asking to be paid. Whether collection is made or not depends upon us.

Rarely in the past thirty-five years have I again experienced conditions so ideal, or perhaps I ought rather to say, rarely have I been so well instructed, as to administer any drug without at least some risk of embarrassment to breathing. For each patient who has died following anesthesia with yellow atrophy of the liver, dozens have died because the oxygen supply to their livers and kidneys was depleted through inadequate breathing. For each patient who has died from postoperative pneumonia due to irritation of his lungs with the vapor of ether, dozens have died from pneumonia following mechanical obstruction to their air passages. For each patient whose heart has stopped during anesthesia because of drug effect on the autonomic mechanism which controls it, the hearts of dozens of patients have stopped because the larynx was flooded with vomitus. Perhaps we ought to worry more about the careful supervision of the breathing of our patients and less about our choice of drugs to prevent pain; more about our own personal knowledge and skill with a particular agent or method and less about how someone else says he gets the best result. We should at least admit the mechanical dangers and emphasize the technical management which will minimize the hazard.

Roughly, in order of the frequency of their occurrence, I shall discuss a few complications in the administration of anesthetics.

Obstruction to Breathing

Relaxation of the Masseter and Pharyngeal Muscles.—A moderate dose of opiate or barbiturate may cause this, especially in the toothless. The debilitated and the injured are so embarrassed on occasion even with little or no effect of drugs. The damage to breathing comes through the base of the tongue "falling back" to obstruct the glottis or pharynx. Noisy breathing makes the diagnosis easy. When accompanied by considerable central depression of respiratory exchange, the noise may be absent. I have missed altogether recognition of obstruction from this cause. On a certain occasion a patient, anesthetized with ether, with an artificial pharyngeal airway in place and connected to a spirometer, made no sound and appeared to be breathing freely; yet a considerable increase in exchange took place when the position of the head was adjusted. An adequate endotracheal airway, such as a rubber tube through nostril or mouth and passing through the glottis, is complete protection. A pharyngeal airway is useful. Adjusting the position of the head may help. Holding the chin up and the mandible forward may be tried. Most important is it to remember that the lateral position with face turned toward the floor requires no equipment and permits the weight of the structures themselves to bring them away from the glottis.

Vomiting.—When this occurs, instant change to the semi-prone position may prevent obstruction of the air passages and aspiration into the lungs. Wiping or suction from the pharynx, if immediately available, will serve.

Reflex Adduction of the Vocal Cords.—Reflex closure of the glottis was designed by nature to protect the lungs from contamination with undesirable substances. Irritant atmospheres and solid and fluid matter, in normal circumstances, are thus kept out of the trachea. People who are extremely ill, who are depressed by drugs or who have suffered injury involving certain of the cranial nerves, do not have a normal laryngeal reflex. It is also true that reflex adduction of the cords may occur in anesthetized patients when certain regions of the body are stimulated by the surgeon. Under inadequate anesthesia, trauma to the external genitalia, the retropelvic, upper abdominal and mediastinal areas may stimulate this reflex. Proper dosage of proper drugs can prevent reflex cord adduction whatever the stimulus applied. Less difficult in some cases may be the insertion of a laryngeal airway in anticipation of the event.

In any case, we must remember that the laryngeal reflex is a normal life-saving mechanism. When it is depressed or abolished, the physician must provide means of protecting the lungs from harm until the reflex is restored. Nature's second line of defense, when the glottis fails to close at the proper time, is the cough. Since this mechanism is usually depressed or absent coincident with the laryngeal reflex, contamination of the trachea demands that it be cleansed by the physician through gravity or suction.

These three circumstances, relaxation of the muscles about the pharynx, vomiting, and hyperactivity or hypoactivity of the laryngeal reflex, constitute the most frequent conditions likely to bring disaster through obstruction to breathing.

Depression and Cessation of Breathing

All drugs which relieve pain can decrease the ventilation of the lungs or even stop breathing entirely. Whether relief of pain or adequate anesthesia are secured without these undesirable effects will depend to a large extent upon sensible and attentive management. Call it skill and experience in administering the chosen drugs, if you will, it really is only rational application of knowledge possessed by every physician. The susceptibility of patients, however, differs. Mistakes occur. Skill may be lacking. Unexpected accidents overtake us. Rarely are these of serious moment if proper measures are instituted at once. This statement applies even in the case in which breathing suddenly ceases.

Diagnosis of the condition is usually obvious. In a case of respiratory obstruction, visible movements are present and often exaggerated. Experience and skill may be required in the recognition of obstruction and the identification of its cause. Not so with depression or arrest. Anyone can recognize it. The question is, what to do about it.

Personally, I have had little or no success with analeptic drugs. We do not use respiratory stimulants other than carbon dioxide. Oxygen therapy is a temptation. It improves the appearance of the depressed patient to an amazing extent, but it is a two-edged weapon. Often the improved comfort and appearance of the patient, the slower

rate of pulse and respiration and the more normal blood pressure serve to allay the apprehension of the physician as well as that of the patient. Meanwhile inadequate ventilation and high oxygen tension in the blood serve to allow the accumulation of carbon dioxide in the tissues. If long continued, the latter circumstance may become as detrimental as the former condition. Since the patient is pink, depression may be continued by further administration of drugs.

The most logical and the safest management of respiratory depression or arrest consists of two measures. Decrease the concentration of the agent in the blood bathing the centers and augment or replace the depressed or arrested exchange in the lungs by artificial means. Volatile and gaseous agents have the advantage of being immediately susceptible to the first treatment. Their concentration may decrease even more rapidly by using the second measure. In the case of nonvolatile agents, dependent on the detoxifying powers of parenchymatous organs, it is well to bear in mind that the presence of adequate oxygen is essential to the detoxifying process. In any case, time and normal physiologic activity will reduce the concentration. The suggested second measure may therefore support the first.

The simple manual maneuvers for artificial respiration or augmentation of it are adequate. So is direct inflation of the lungs with a face mask and breathing bag or by the physician's blowing through the nose of the patient. The important fact which must be emphasized to our nurses, orderlies and other attendants as well as to ourselves is that artificial respiration or artificial augmentation of breathing are not heroic measures to be reserved for the dead and dying and to be done by the policeman and the fireman. They are ordinary, every-day procedures to be instituted at once, simply, calmly and without haste and roughness, whenever and wherever there is need for them. A hospital orderly has saved the life of a patient on the elevator by placing him in the semiprone position on his cart and producing a few artificial respiratory cycles by manual maneuvers. Other passengers and the elevator operator scarcely realized that anything unusual was taking place. A dozen doctors called to the assistance of the patient a moment later when he arrived in his room could not have helped him.

All general anesthetic drugs reach the central nervous system in the blood vessels. They may enter the blood through a needle puncturing a vein, through the mucosa of the gastro-intestinal tract, by hypodermic injection or by passage through the membrane between the alveolus of the lung and the pulmonary capillary. The portal of entry is a one-way street in every case but the last. Volatile and gaseous agents may go out the way they came in as long as breathing continues. The others, for the most part, must await destruction within the body before they are eliminated.

Analgesics, soporifics, narcotics all produce effects differing only in degree from those of anesthetic agents. Usually the doses are not adequate seriously to embarass breathing. However, the hazard is present even when remote.

Locally acting drugs for local anesthesia, nerve block, spinal analgesia, et cetera, occasionally have systemic effects. These are manifest mainly in embarrassed breathing. A convulsion soon becomes a respiratory crisis.

The greater danger to our patients is not the direct toxic effect of drugs upon the cells of the body but the incidental effects of the drugs upon the vital physiologic functions. Even circulatory collapse is benefited more by free breathing, artificial when necessary, than by any drug.

Protection of our patients may therefore consist in attention to the maintenance of adequate breathing while we obliterate their pain rather than in everlastingly changing to the use of every new drug and new technique of administration which may be suggested.

The methods of correcting insults to respiration are the same, whatever drugs are used. Until we are conversant with those methods, we are dependent for safety solely upon our skill in administration. With knowledge of these methods, we are probably relatively safe in using any drug with which we are familiar.

SOME RECENT ACTIVITIES OF THE AMERICAN MEDICAL ASSOCIATION

HERMAN L. KRETSCHMER, M.D.
President-Elect of The American Medical Association
Chicago, Illinois

MR. President and members of the House of Delegates: It is with much pleasure that I bring to you the greetings and felicitations of the American Medical Association.

The American Medical Association, as every one of you knows, is doing everything possible to aid the winning of the war. You will agree with me, I am sure, that the Association has done much toward this end. When it was evident that the war clouds were gathering on the horizon, the Association undertook the classification of all physicians of the country. This list was immediately placed at the disposal of the armed forces and was a great aid to them when hostilities began. From that time the problems connected with the war effort have steadily increased and they are still on the increase.

I should like to point with pride to another early project of the Board of Trustees, namely, the authorization to publish "War Medicine," bringing to the men in the armed forces the latest advances in medical and surgical developments related to the war effort. I know of no more timely or important contribution to medical journalism anywhere in the world. The work of the association has been accomplished under great difficulties. It may interest you to know that 20 per cent of the personnel of the headquarters office are either in the armed forces or are rendering service to your government. In spite of this shortage of trained personnel, the amount of work has increased about 20 per cent. Here, as in any organization, the turnover in employes is rather rapid and I know that you realize just what this means. It means a special kind of training; then, after the employes are trained, some leave for other more remunerative positions. New personnel must be secured, which means training a new group of people, which adds to the work of the office. Yet, in spite of this, the work continues in a most satisfactory manner. This increased burden of work and responsibility rests not only upon the headquarters staff, but also on the various councils, bureaus, and the Board of Trustees.

I wish to take this opportunity to speak a word of praise and admiration for your Board of Trustees. It has been my privilege to sit, not only with the board, but also with each meeting of the executive committee, during the past ten years. This board, as you know, is representative both as regards the various sections of the country and also as regards the various fields of medical practice. I have had, since the first time I sat with this board, nothing but admiration for their devotion to duty. They are faced with many serious problems which are always weighed with a great deal of care; the policies are discussed at great length and deliberation. I have yet to find a member of the board who takes his job lightly and who does not give the very best of which he is capable. Not only do these men travel great distances in coming to and from the meeting, but the amount of "home work" is almost staggering.

This is not a closed corporation as has been alleged. Any member of the association may bring his problems to the board. Many have done so and have always expressed appreciation at the reception and consideration given to them. Nor has anyone during this time tried to dominate their deliberations and conclusions.

It seems to me that the members of the medical profession, particularly the members of the House of Delegates of this association, should familiarize themselves with the work of the association. I would strongly urge every member of this House of Delegates to pay a visit to the headquarters office. I am sure you will be well repaid for your time and your efforts. Of course, there are criticisms of the association. I listen patiently. Then I always ask this question: "Have you gone through the home of the association and seen for yourselves whether or not you have been reliably informed?" Only too frequently, I am sorry to say, the answer is: "No, I have not."

Of the many problems that confront the physicians of this country today, I am sure none

Delivered at the Annual Meeting of the House of Delegates of the Minnesota State Medical Association, Rochester, Minnesota, April 12, 1944.

exceeds in importance the Murray-Wagner-Dingell bill. I am sure you have read this bill and have given it your most serious consideration. No piece of legislation has received as much consideration from not only the physicians of this country and men in allied professions, but from business executives and members of other professional groups. As an example of this interest may I call your attention to the detailed study of this subject by the American Bar Association. This comprehensive study was published recently† and is worthy of careful study by every citizen of this country.

I have had the opportunity of talking with many bsiness executives who seem to be impressed by the fact that they, and they alone, are carrying the ball. They tell me that the doctors in their community are not much interested and they wonder why the doctors are so indifferent. I am certain that you will not agree with this statement because I know every member of this House of Delegates has been interested in this bill.

I was greatly interested in a recent conversation with a business executive. I was interested in his reaction to my statement that the doctors have been interested, and that, as long as twenty-four years ago, Dr. Whalen, then a delegate from the Illinois Medical Society, introduced a resolution into the House of Delegates on the subject of socialized medicine. This business executive was surprised.

In view of the fact that this bill concerns every physician in the country, every physician should devote at least two hours every day toward educating the people in his community as to just what this bill means in the way of increased taxes and a deterioration of the quality of medical services and the limitations in the choice of their physician. In other words, I believe that every doctor should be his own one-man propagandist. No one is in a better position than the physician himself to convince the people what this means in the cost and in the quality of medical service.

There has been manifest a good deal of objection to raising the social security tax up to 6 per cent. I have been informed that a proposal has been made to delete the medical provision of this bill and then to pass it. This, however, will only be a breathing spell. But I believe we should continue our educational program to our patients, to our neighbors and to our "cronies." I do not believe the fact that the medical provision of this bill will be deleted is any guarantee at all that another bill will not be introduced or an addition made to the present Wagner Act at some subsequent time.

There is nothing new in this technique. It is a part of the planned economy. Ever since the days of Rome, attempts have been made, and in nearly every civilization, to provide so-called short cuts to perpetual prosperity and short cuts to social security. What does the record show? Loss of individual freedom, utter collapse, and chaos. In our education of the public we should call attention to what has gone before as far as the individual and his freedom are concerned.

And while I am on the subject of this bill, may I discuss with you for a moment the splendid work that has been accomplished by the National Physicians Committee. One of your own members, Dr. Braasch, is a member of their Board of Trustees and he has taken a most active part in their work. The results of the survey conducted by them is most interesting and I do not know of any organization which could have done a better job. As Dr. Morris Fishbein recently stated in an editorial published in the *Journal of the American Medical Association,* "In making this survey the National Physicians Committee has rendered a distinguished service to American medicine."

This report is available to each of you and I think it would be well for you to get a copy of this report and to give it your most serious study.

I was greatly interested in the lack of physicians' interest in this committee as revealed in the last report just received before leaving to attend this meeting. This recent release shows that only 4,205 physicians made contributions toward supporting the work of this group. Personally, I cannot understand this bland indifference.

One hears much, shall we say, loose talk about how bad we are in with the public. I have always thought this was an old bromide; as a matter of fact in the first issued of the *Transactions of the American Medical Association,* published in 1847, there appears a similar statement with reference to certain practitioners of medicine. What are the facts in this so-called "smear" campaign?

†Journal A.M.A., Feb. 29, 1944.

In order to ascertain the opinion of the people about the American Medical Association, a Pilot survey was undertaken by the National Physicians Committee. This revealed the astonishing facts that the people interviewed believe that the American Medical Association is interested in the development of new techniques, that it is interested in keeping high standards of medical practice and in safe-guarding the medical products used in the treatment of the sick. Interesting was the fact that less thaan 10 per cent thought of the American Medical Association as a union or medical trust.

The conclusions that may be drawn from the recent report of the National Physicians Committee are that the American people do not want political medicine. They want and demand free choice of physicians; and they believe that their doctors have a personal interest in them.

Another enlightening fact brought out by the survey was the fact that a large number of people are familiar with, or participate in, prepayment plans. Interesting, but not surprising, is the fact that those who participate in these plans approve of them and think they are better off with them than without them. A large number of the people interviewed believe that some plan for easy payments should be established to provide for the payment of costs of prolonged and unusual illness. This report should be of great value to all interested in the plans for the extension of medical service, and no doubt will receive consideration by the new council on medical service and public relations established by the House of Delegates of the American Medical Association at the last annual session.

I do not believe that any one plan is the answer. The problems vary in different sections of the country. The plan that is feasible in one section of the country under existing local conditions may not work in another section, with an entirely different set of local conditions.

These plans must be under the control of the physician because after all it is he who renders the service to the patient. This principle must never be relinquished because without it there is the danger of deterioration in the quality of medical care. Nor must we overlook the fact that in the midst of this idealism there lurks the possibility of abuse. I am of the opinion that the present increase in bed occupancy in hospitals is due to the fact that many now have this coverage. Because it is human nature to get your money's worth, not only do they go in more willingly but often demand to be sent to the hospital for trivial ailments, not illnesses that justify hospitalization, and there is in some patients a tendency to stay an extra day or two.

Keenly aware of the fact that with the cessation of hostilities there would arise definite problems in the postwar period, the Council on Medical Education and Hospitals has undertaken a study of postwar graduate medical education. It is apparent that many thousands of physicians whose hospital training has been interrupted will desire to complete their studies. Interns and residents are vitally concerned. This means that the present facilities for residencies, fellowship and postgraduate courses will have to be increased and new ones developed. Fortunately, this program was started before the demand arose so that the survey of opportunities and the development of this program can be carried out without sacrificing the high standards set by the Council.

A questionnaire has been sent to 3,000 men in the armed forces and is now being sent to all physicians who are in the Army, the Navy, or the United States Public Health Service. This questionnaire asks the man just what he would like to do when he returns from the war. Fortunately, the majority of the young men who graduated during the past five years indicate that they want to extend their medical education, to return to internships, or incompleted residencies. Some of them want to take extra work to qualify for the certifying boards.

The Council on Medical Education and Hospitals of the American Medical Association, working with other educational agencies, is going to do everything possible to work out plans and arrangements to give these men what they want.

Other portions of the questionnaire ask the physician to indicate whether or not he wants to go back into practice, and, if so, the nature of the community in which he would like to serve. There is every indication that most of the men who had been in practice more than five years before the call to war want to return to the community from which they departed. Many of them want courses in which they can brush up regarding advances in medicine. Opportunity

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PEDIATRIC-PATHOLOGICAL CONFERENCE

DULUTH PEDIATRIC SOCIETY
O. W. Rowe, President

ST. LUKE'S HOSPITAL
Arthur H. Wells, Pathologist

VOLVULUS IN THE NEWBORN

With a Report of Five Fatal Cases

R. P. BUCKLEY, M.D., and ARTHUR H. WELLS, M.D.
Duluth, Minnesota

Five cases of volvulus of the small intestine in newborn infants will be presented. They occurred on a basis of congenital defects in the development of the mid-gut. Brief necropsy findings in each case will be described, and a discussion of the general subject will be included.

DR. R. P. BUCKLEY: A premature, 2455-gram boy was born on December 19, 1942, and died on the 29th. The child was doing nicely until his tenth day when he had become listless, cyanotic and his abdomen was distended. There soon developed a continuous bile-stained discharge from the nose and mouth with a foul odor. A grossly bloody rectal discharge was noted. No abdominal masses could be felt. The infant died on his eleventh day while being prepared for a laparotomy.

DR. G. BERDEZ: I found a counterclockwise rotation of the jejunum, ileum and mesentery through 180° with extensive hemorrhages, edema and necrosis of the walls of the twisted gut. There was a moderate diffuse peritonitis. The stomach and duodenum were markedly dilated with gas and bile-stained fluid. There was mild dilatation of the remainder of the small intestine and the colon was contracted.

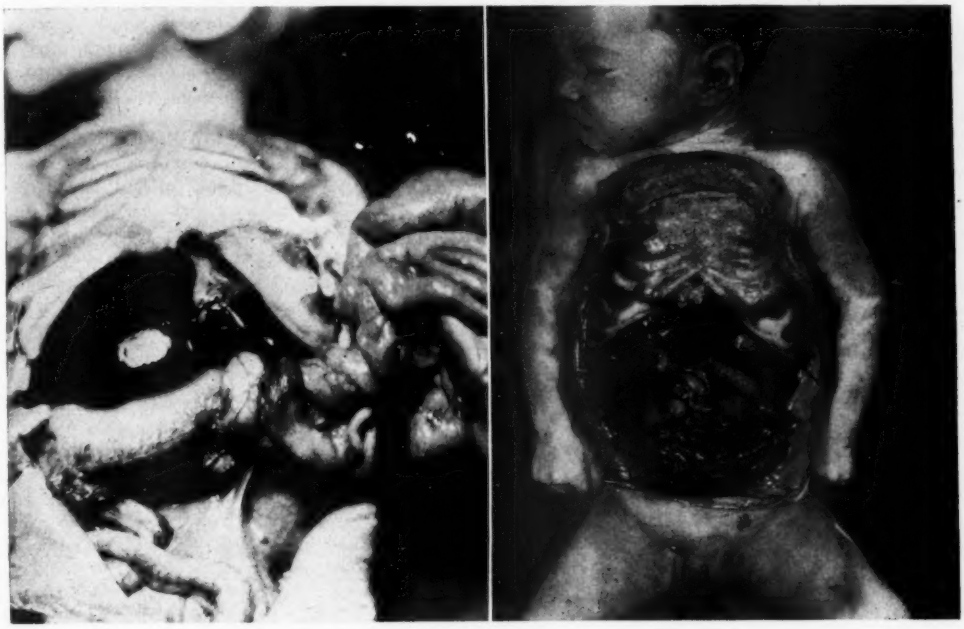
DR. S. N. LITMAN: This girl was a full-term spontaneously delivered infant, weighing 6 pounds 2 ounces. She started spitting up and vomiting bright green fluid the first day. I saw the child 48 hours after birth. She had not retained anything taken by mouth. There were several meconium stools and she weighed 5 pounds 3 ounces. She had a shrill cry, her temperature was normal until the day before death when there developed a low-grade fever. At this time the red blood cell count was 2,400,000 hemoglobin 72 per cent, white blood cell count 2,400. On the eighth and last day she had a five-hour retention of barium in the stomach. There was a duodenal distention, practically no barium had passed after nine hours and the clinical diagnosis was complete obstruction of the third portion of the duodenum. The temperature had reached 107°. The child's condition was critical and laparotomy was not attempted.

DR. A. H. WELLS: Necropsy findings (Fig. 1) were those of a congenital defect of the mesentery, abnormal rotation of the small intestine and the complication of a torsion of the jejunum and ileum in a clockwise manner through 720° resulting in a collapse of the jejunum and ileum. The cecum was not involved in the torsion and it was in its usual position. There was no attachment of the mesentery along the posterior abdominal wall excepting through the superior mesenteric artery. The stomach and duodenum were severely distended and their walls were rather thin. This distention stopped sharply at the onset of the jejunum and the beginning of torsion. There was no gangrene of the intestines; however, there was a mild terminal bronchopenumonia.

DR. R. P. BUCKLEY: This full-term, spontaneously delivered, 6 pound 13½ ounce baby boy was born April 24, 1937, and died June 19, 1937. The child was in good condition except that he started vomiting a half hour after birth and continued vomiting several times every day and on occasions vomiting everything taken by mouth. At times fluids were retained. On May 3, 1937, there was distinct improvement and no vomiting during the next five days. There was no apparent pain. He developed a purulent discharge in the left eye. The recurrent vomiting was rapidly controlled and the staphylococcus aureus and non-hemolytic streptococcus infection of the left eye rapidly cleared up. On May 22, 1937, he started vomiting again. There was some improvement in the vomiting after the next few days, however, visible peristaltic waves were seen over areas of the abdomen. The white blood cell count was 10,100 and the hemoglobin was 16 grams on June 5, 1937. Repeated gastric lavages, saline hypodermoclysis and repeated small blood transfusions from the mother were used. A partial duodenal stenosis was considered most likely from clinical observations at this time. A barium meal and fluoroscopy study revealed partial obstruction in the duodeno-jejunal junction on June 9, 1937. The infant gradually lost ground and on June 14, 1937, an exploratory laparotomy through a left rectus incision under local anesthesia revealed several large rounded, palpable but not visible masses near the root of the mesentery practically in the lumbar region. A rubber catheter was left in a loop of small intestine. The vomiting recurred two days after the operation and continued until the time of death on June 19, 1937.

DR. A. H. WELLS: Necropsy revealed a congenital abnormality (Fig. 2) characterized by an absence of mesenteric root attachment to the posterior abdominal wall, excepting through the mesenteric vessels at their usual site. The duodenum was entirely in the abdominal cavity. The lower ileum followed a peculiar course in which it passed up to the left over the entire small intestine and mesentery and back down to the right lower quadrant where it entered the cecum near the proper site. The colon was not unusual. The stomach and duodenum were considerably dilated and their walls thickened. The duodenum measured 4 cm. in diameter, while the remainder of the small intestines although mildly distended did not measure more than 2 cm. in diameter. There was a torsion of the entire ileum and jejunum about the superior mesenteric ves-

sels in a clockwise manner through 450 degrees constricting several turns of small intestines to the point of partial occlusion. The torsion was most marked at the duodeno-jejunal juncture. An acute generalized peritonitis of moderate grade was found and cultures of the peritoneum revealed staphylococcus albus and B. coli. A postmortem blood culture had B. pyocyaneous.



Torsion of the jejunum and ileum on the superior mesenteric vessels.

DR. R. E. NUTTING: This sponstaneously delivered, full-term, physically well-developed infant was born on July 11, 1940, and expired on August 8, 1940. The child began vomiting on the third day of life and continued vomiting or regurgitating fairly large amounts of fluid practically every day thereafter. The birth weight was 3125 grams and in spite of the vomiting the child increased in weight after a few days. The persistent and forceful nature of the vomiting accompanied by peristaltic waves over the upper abdomen led to a suspicion of hypertrophic pyloric stenosis; however, there was a period of improvement and operation was deferred. The weight gain was insufficient and vomiting continued intermittently. On August 7, 1940, the boy's condition suddenly became much more critical. There was a distention of the abdomen which was not relieved by decompression. The white blood cell count jumped from 10,000 to 23,000 in twenty-four hours. The temperature had risen from 98.6° to 103° in the preceding forty-eight hours. An x-ray film of the chest was normal. The child was practically moribund. The abdomen was markedly distended and there was fluid in both flanks. There was no peristalsis; the abdominal wall was somewhat blue. There was a bloody stool. Through a right rectus incision under local anesthesia a complete torsion of the jejunum and ileum was found with gangrene of intestines. The gangrenous portion of small intestines measuring 80 cm. was resected and the two ends brought out on the surface of the abdomen through the operative wound. The child was an extremely poor operative risk and left the table in bad condition to die the following morning.

DR. A. H. WELLS: The necropsy revealed a congenital defect of rotation of the small intestine and cecum with elongation of the mesentery and the evidence of the previous torsion. The mesentery of the small intestines was attached to the posterior abdominal wall for a distance of only 3 cm. below the superior mesenteric artery. The mesentery measured 14 cm. in length, from this mesenteric attachment to the most distal loop. The cecum was free in the abdominal cavity and located at a point near the midline in the lower abdomen, while the ascending colon was attached loosely in its approximately normal position. There remained the evidence of torsion of the entire ileum and jejunum on the superior mesenteric artery. There were swelling and small hemorrhages throughout the mesentery and in the gut wall with light reddish and bluish discoloration of the remaining 9 cm. of jejunum and 60 cm. of ileum. The intervening 80 cm. of small intestine were hemorrhagic and gangrenous when they were removed at the time of the laparotomy. There was a mild but distinct hypertrophy of the walls of both the stomach and duodenum. Peritoneal surfaces had a diffuse, moderate injection and a very light fibrinous exudate, which was characteristic of an acute generalized peritonitis. There were mild toxic changes in the myocardium, liver, spleen and kidneys. The left testicle was in the inguinal canal.

DR. C. H. SCHRODER: This baby boy was prematurely born on September 14, 1944, and died on September 16, 1944. His weight was 1610 grams and length 43 cm. He was put in an incubator and given continuous oxygen. His color was fair. He cried vigorously but was considered a small and weakly infant. He was fed by dropper and later by gastric tube. Slight cyanosis developed and a mild elevation of the temperature was noted from the time of birth, reaching 102° at the time of death. The child seemed to be progressing fairly satisfactory until his last day when two hours before

his death his breathing became labored, color poor and he started vomiting and would not take his feeding. Respirations became shallow and labored. The vomiting of bile became continuous. The cyanosis increased and breathing became gasping. There was much perspiration. A small mass could be felt in the right upper quadrant of the abdomen shortly before death.

DR. A. H. WELLS: Necropsy again revealed a congenital abnormality of the mesentery characterized by an unusually long mesentery measuring 5 cm. at its longest point into a loop of lower ileum measuring 21 cm. long which had twisted through 900 degrees in a clockwise manner resulting in a deep reddish purple gangrene throughout this loop of twisted gut which extended to within 2 cm. of the ileocecal valve. There was a normal attachment of the root of the mesentery of the small intestine and the cecum was in its proper position. There was a small Meckel's diverticulum measuring 1 cm. in length with a broad orifice. There was in addition a diffuse but mild injection of peritoneal surfaces with a light fibrinous exudate throughout the abdominal cavity. Strangulated loops of intestines were moderately distended while the remainder of the small intestine had only a mild distention.

and are frequently associated with other defects leading to torsion and must be sought for in any case of volvulus.

Sweet finds that there is a greater frequency of volvulus among the Russians, Finns, Poles, and Scandinavians than other races. The comparatively coarse food and its resultant meteorism in these people is considered an important factor in the production of torsion. By far the most important cause of volvulus among the thirty-seven cases (involving all age groups) reported by McKechnie and Priestley was peritoneal adhesions. Twenty-one of the cases had acquired adhesions and most of these were the result of previous abdominal operations. Eight of their patients had congenital anomalies. These authors felt that the fixation of one loop of small intestine with the free mobility of the adjacent loop was the outstanding factor in production of volvulus. There is a distinct predominance of males over females amounting to as much as two to one in some group studies. No age group is exempt. It is found from early infancy where congenital

CLINICAL FEATURES

Newborn	Vomit. Onset	Abd. Pain	Abd. Dist.	Palp. Mass	Bowel Move.	Perist. Waves	X-ray Diag.	Fever	Surg.	Day of Death
1	10th day	0	Late	0	Late Bloody	0	Not Done	Late	0	11th day
2	1st day	0	0	0	+	0	+	+	0	6th day
3	1st day	0	Late	0	+	+	+	Late	+	56th day
4	3rd day	0	Late	0	Late Bloody	+	Not Done	+	+	28th day
5	3rd day	0	Late	+	+	0	Not Done	+	0	3rd day

Discussion

DR. A. H. WELLS: A brief review of the five cases just presented is found in the accompanying table.

Volvulus in early childhood is generally the result of a congenital defect in the mid-gut. In their presentation of nineteen cases of volvulus directly traceable to errors in intrauterine development of the gut, McIntosh and Donovan describe a variety of abnormalities encountered in these patients. Knowledge of the more common variations of malrotation of the gut is a prerequisite to proper surgery. Dott describes the important congenital defects leading to torsion as including a long relaxed mesentery, short attachment of the mesenteric root, shortening of the vertebral attachment to the posterior abdominal wall, insufficient flexion of the intestines, nonrotation of the common mesentery of the large and small intestines and an unusually long small intestine. To this may be added exomthalos, a condition in which there is a failure of the gut to recede from the umbilical cord. Congenital adhesions may be the cause of intestinal obstruction defects of rotation are prominent to old age where tumor masses and adhesions predominate as etiologic factors. In a review of seventy-seven cases Lawson found that the sigmoid was involved in one-half of the total. The cecum was the next most common site and the least number occurred in the small intestines.

DR. R. P. BUCKLEY: The symptoms and signs of volvulus are those of intestinal obstruction and developing gangrene of the gut. Obstructive symptoms may be extremely low grade and result in recurrent attacks over a period of many years. More often there is an acute onset of symptoms, nearly always associated with nausea, vomiting and abdominal pain. The pain may be difficult to interpret in infants. Frequently there is constipation and even obstipation but this symptom must not be depended upon. The degree of abdominal distention is frequently related to the site of the volvulus so that if it constricts the first portion of the jejunum there may be very little distention excepting that due to the stomach and duodenum. Occasionally one can demonstrate peristaltic waves in the

upper abdomen. Tenderness and muscular rigidity are frequently missing until there is interference with blood supply and gangrene of the involved loops of intestines. With the development of gangrene, the symptoms of peritonitis rapidly present themselves with a rise in the temperature, pulse and the leukocyte count, all three of which were probably normal before the onset of necrosis. In a newborn infant where vomiting cannot be explained on the basis of cerebral hemorrhage or infection, torsion of the intestine must be considered seriously. Depending upon the age and sex of the patient many disease processes must be considered in the differential diagnosis of volvulus. They include ruptured peptic ulcer, acute appendicitis, strangulated umbilical hernia, renal colic, pyloric stenosis, ectopic pregnancy, acute pancreatitis and a host of other acute surgical abdominal conditions. The great bulk of cases reported in the literature were diagnosed preoperatively as acute intestinal obstruction, and it was left to the surgeon to find out the exact nature of the condition. An x-ray study following a barium meal is frequently diagnostic of the site of intestinal obstruction.

Many well-established, fundamental rules in dealing with intestinal obstruction and gangrene of the gut hold for the treatment of volvulus. It should be pointed out, however, that some surgeons feel that preoperative care in most cases is a loss of precious time and that chlorides, glucose and plasma may well be given at the operating table since the development of gangrene may be extremely rapid and seriously changes the prognosis. The specific etiologic factor behind the volvulus must be recognized by the surgeon as soon as possible. In adults this is most likely to be an acquired adhesion and in these patients there is a definite chance of recurrence no matter what is done. In infants and children the frequency of errors in rotation of the midgut plus the occurrence of congenital adhesions with or without other deformity must be kept in mind. McIntosh and Donovan, Ladd and Elman as well as others warn that these coexisting congenital adhesions must be sought for and released in every case of volvulus associated with other congenital abnormalities. If not relieved the torsion is likely to recur or an obstruction may result from the adhesions alone.

It is generally necessary to eviscerate the small intestine through the operative wound before the volvulus can be properly reduced. In fact the mistake of not recognizing volvulus at the time of operation, as in our second case, has been made a number of times as reported in the literature due to a failure to eviscerate the patient.

The prognosis depends upon the age of the patient, duration and severity of symptoms, dehydration, loss of chloride and the development of gangrene and its complications. Lawson reports on seventy-seven collected cases of varied age groups in which there were fifty-seven operations and twenty-five recoveries or 43 per cent. Weible found twenty-three recoveries in sixty-five cases. All successful operations were performed within forty-eight hours after the patients were seen.

Conclusion

Five newborn infants with varied congenital defects of the mid-gut developed torsion of the small intestines and died of intestinal obstruction or gangrene. In only two of the cases was operation performed. In one the operation was too late and in the other the volvulus was not recognized. Volvulus of the newborn deserves a thorough understanding by all physicians concerned with this special subject.

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TUBERCULOSIS IN ALASKA

Tuberculosis is by far the most important public health problem in Alaska. At least two factors now stand in the way of an effective program for its control; the lack of anything even approaching adequate hospital facilities, and the failure of the white population to understand the seriousness to them of the great numbers of cases among the natives.

Methods of finding and reporting cases are very poor, and there is an astonishingly large number of deaths that occur without any medical attendance so that the cause of death is given as "unknown." The figures for tuberculosis deaths are admittedly incomplete for these reasons. Even so, they represent death rates for whites of forty-eight per 100,000. The rate for the United States among white persons in 1940 was thirty-seven per 100,000. The native death rate of 728 is nearly fifteen times the rate for the United States.—CARL E. BUCK, Dr. Ph. and G. HAYS, M.D., *Alaska's Health*, December, 1943.

HISTORY OF MEDICINE IN WABASHA COUNTY

(Continued from October issue)

Biographical Dictionary

John Charles Adams was born in Inniskellen, Ireland, in 1831. He graduated in medicine from the University of Louisiana in 1857. During the Civil War he had a commission as surgeon with the Thirtieth Mississippi Regiment of the Confederate Army. In 1867 he was ordained as a minister in the Protestant Episcopal Church, and he came to Lake City the following year to be rector of the church in that town. In 1871 he was elected an honorary member of the Wabasha County Medical Society and resumed the practice of medicine and surgery the next year. He was elected to the state society in 1874 and was president of the county organization in 1876. For nearly forty years he served the community well. He was always progressive, active in medical societies, and a frequent contributor to medical journals. The minutes of the Wabasha County Medical Society meeting of January 10, 1878, contain reference to a case of peri-typhlitis in which the operation was performed with success by Dr. Adams. He was honored formally by his associates on his seventy-fifth birthday. He died in 1911.

W. T. Adams was born at Lee, Oneida County, New York. He came to Wabasha in the early seventies, graduated from Rush Medical College in 1875 and returned to Minnesota. After a few months in Plainview he located definitely at Elgin. He established a drug store in Elgin and was a capable and active practitioner in that locality for forty-two years. He was especially interested in medical societies. He was a member of the Wabasha County Medical Society (1875), the Minnesota State Medical Association and the American Medical Association. He was known as one of the founders of the Southern Minnesota Medical Association and served as its secretary for nearly twenty years. He was county physician during the nineties, and died in 1917.

W. A. Allen was a homeopath who practiced in Plainview from 1867 until 1872, when he moved to Rochester.

S. T. Armstrong practiced in Wabasha for a short time in 1880 when he took over F. H. Milligan's practice during the latter's absence. He was a graduate of the St. Louis Medical College and joined the Minnesota State Medical Society in 1880.

M. B. Axtell lived at Pepin, Wisconsin, but belonged to the Wabasha County Medical Society and was its president in 1874.

E. H. Bacon practiced in Mazeppa and was elected to the county medical society in 1872.

E. O. Baker located in Lake City in 1875. He moved to Durand, Wisconsin, in 1878, and, later, to Menomonie, Wisconsin.

A. E. Baldwin, of Plainview, was elected to the Wabasha County Medical Society in 1882. He was a graduate of the Chicago Medical College.

Emery H. Bayley was born in 1865. He was graduated from Rush Medical College in 1893, and after a year's internship at Asbury Hospital, Minneapolis, located in Lake City, where he was engaged in active practice until his death December 19, 1927. He was a member of the county medical society, and twice served as its president. He was especially interested in public health work, and served as county and city health officer and was president of the county tuberculosis commission for many years. He was chief promoter of the Buena Vista Sanatorium, the county's sanatorium for the tuberculous. He presented a number of papers before the various medical societies to which he belonged, many of which were published in medical and public health journals. He was a progressive practitioner and is said to have installed the first x-ray machine that came into the county. He gave frequent public health talks to lay audiences.

Joseph F. Bond was born in 1862, graduated from Rush Medical College in 1885, located in Wabasha in 1899, coming there from Montana. He was associated, first, with W. H. Lincoln but established himself independently about 1905 and remained in Wabasha until his death, March 26, 1941. He served on the pension board and was highly regarded in Wabasha. He joined the county medical society in July, 1901, and was elected president for one year from July, 1902, to July, 1903.

J. M. Bowen came to Wabasha about 1855 and remained until 1859.

A. C. Boyd practiced in Mazeppa and then (1880) in Millville. In 1881 he moved to Lewiston, Winona County. He graduated from Rush Medical College and was a member of the Wabasha County Medical Society (1881). He later became a member of the Winona County Society.

Chas. W. Bray, a graduate of the University of Minnesota, was associated with W. F. Milligan of Wabasha in 1896. He was a member of the county medical society.

Dwight F. Brooks, of Minneiska, attended the University of Michigan for one course in 1867. He became affiliated with the county medical society in 1874. He was active in local Republican politics and practiced medicine in that locality for many years. At a later date, he moved to Saint Paul where he was engaged in the lumber business.

Sheldon Brooks came to Minneiska from Winona County in 1860. He practiced medicine as the occasion demanded and served in the war. The larger share of his time, however, he devoted to the grain business. (See Winona County.)

L. P. Bunce was an oculist in Lake City in 1879.

Arthur J. Button located in Hammond in 1899. He was a member of the county medical society.

F. W. Calkins practiced in Mazeppa about 1888 and was a member of the county medical society. He was graduated from the Chicago Medical College in 1886.

F. E. J. Canney, a homeopathic physician and surgeon, practiced in Lake City in 1868 and 1869.

George F. Childs practiced in Minneiska from 1857 until 1860 when he went to Washington, D. C. He probably visited Minneiska for a short time, about 1854 or 1855, the intermediary time being spent in Winona County.

Leonard E. Claydon came to Millville in 1895 following his graduation from the University of Minnesota. He was later a partner of Dr. M. H. Cremer of Mazeppa. He was a member of the Wabasha County Medical Society and served as county physician.

Sheridan Cobb, a homeopathic physician, graduated from Hahnemann Medical College in 1884 and practiced in Plainview. He was originally from Rochester, and later moved to Saint Paul where he died.

Wm. J. Cochrane was born in Wabasha County in 1867, graduated from the College of Physicians and Surgeons in Chicago in 1895, served as intern for eighteen months at the Illinois Eye and Ear Infirmary and located, first, at Quincy, Illinois, where he practiced his profession from 1896 to 1899. In December, 1899, he located in Lake City. He served as Captain in the Medical Corps of the United States Army in World War I. After his discharge, he settled in Minneapolis where he practiced from 1919 to 1921, when he returned to Lake City. He continued his practice there until 1941 when he retired. He still maintains his home in Lake City. He has been president of the Lake City Hospital Board and also of the Buena Vista Sanatorium Commission for a number of years. Since 1901 he has been local surgeon for the Chicago, Milwaukee and Saint Paul Railroad. Though retired from general practice, he continues to hold these three positions and to take a prominent part in civic affairs.

James B. Cole was born in the town of Winona, and was graduated from the medical department of the University of Michigan in 1882. He began to practice in Minneiska, but after about a year moved to Winona County where he was associated with James M. Cole, his father. In 1887 he came to Wabasha. He was a member of the Wabasha County Medical Society (1887) and the state society (1883). About 1893 he suffered a serious attack of brain fever which resulted in his using opiates. He died in 1898 in Ann Arbor, Michigan, from a self-administered overdose of chloroform. He was about forty years of age at the time. Previous to his illness, he enjoyed a very large and lucrative practice. He was a Mason, an Odd Fellow, a Modern Woodman, a genial, kind-hearted person with many friends.

Charles W. Crary was born at Pottsdam, New York, in 1835. He graduated from Albany Medical College in 1858 and attended the Jefferson Medical College in 1870. He was captain of Company H, Ninety-Eighth Regiment, New York Volunteers, in 1861 and saw much service during the Civil War. He practiced in Lake City from about 1876 until about 1889, when he moved to Chicago. He was the author of a treatise on the history of homeop-

athy and was appointed a member of the Bureau of Clinical Medicine by the president of the state homeopathic institute in 1879.

M. H. Cremer located in Mazeppa about 1893. He served as county physician and was an officer in the county medical society. Later he moved to Red Wing.

E. C. Davis began to practice medicine in Plainview about 1876. He had studied medicine with Drs. Tefft and Waste and graduated from a medical school in 1879. He was a member of the Wabasha County Medical Society and died in November, 1881.

James P. Davis was born in England in 1843. At eighteen years of age he entered military service in the Civil War. He graduated from the Missouri Medical College in 1875 and came to Wabasha County the same year. He located first at Kellogg and later at Hammond and at Millville. He died in 1909.

A. C. Dockstader (Lake City) homeopath, 1896-1900. Moved to Hastings. (See Dakota County.)

F. A. Drake, of Lanesboro, in 1898, came to Wabasha where he was at first associated with W. H. Lincoln. He was a graduate of the University of Minnesota.

C. P. Fisher practiced in Wabasha in 1861. He had previously lived in Winona. His professional card read, "C. P. Fisher, M.D., German Physician, Surgeon and Accoucheur."

Lew H. Garrard came to Lake City in 1870 and was twice elected mayor of the town. He apparently devoted very little time to practicing. (See Goodhue County.) His death occurred at Chatauqua Lake, New York, in 1887.

Chauncey Gibbs came from Ohio in 1856 to renew his health. He was one of the seven to lay out the village of Centerville which was later to become Plainview. He did not intend to practice medicine but soon found himself doing so. He died a few years later.

S. Gould came to Mazeppa and moved to Olmsted County in 1882.

Royal A. Gove was elected to the Wabasha County Medical Society in 1882 and served as secretary and treasurer for several years. He practiced for a short while in Wabasha, then moved to Millville, where he remained until 1890, when he went to Tacoma, Washington.

G. W. Greene, an eclectic physician, ran a store and practiced in Lake City throughout the sixties. In 1870 he moved to California, but later returned to Minnesota and was for a short time in Goodhue County. He died in the early eighties.

H. M. Hamlin practiced in Minneiska in 1878 and served as a county physician.

A. L. Holmberg, a graduate of the College of Physicians and Surgeons in Chicago, assisted W. H. Lincoln of Wabasha in his practice in 1899.

Alfred W. Hombogen is listed in Polk's directory for 1890 as practicing at Reeds Landing. He was later connected with an eye and ear infirmary in Chicago.

David W. Horning graduated from the Homeopathic Medical College of Chicago in 1883. He practiced in Lake City until 1891 when he moved to Minneapolis. He was a member of the Minnesota State Homeopathic Society, of which he served as secretary.

S. P. Jones was an eclectic physician who came to Weaver in 1878, and practiced there for many years.

John Kelly settled in Goodhue County in 1853 and later retired to Lake City, Wabasha County, where he died in 1892, being ninety-one years of age at the time. (See Goodhue County.)

P. N. Kelly came to Wabasha to practice about 1891. He was a member of the county medical society, serving as secretary from 1892 to 1894, and as vice president in 1900. He also served as county coroner, and as a member of the pension board. He died in 1903.

Richard Lampe, said to be a graduate of the University of Göttingen, was mentioned in early records, but no information about him is available.

B. F. La Rue graduated from Rush Medical College in 1870 and located in Lake City that year. He was elected to the county medical society, serving as secretary from 1870 to 1872, and to the state society (1872). He ran a drug store at Reeds Landing and moved in 1879 to Appleton, Swift County.

L. M. J. Leonard practiced in Lake City in 1876. He had previously practiced in Hastings.

Ferdinand Lessing, of Wabasha, served in the Civil War as a hospital steward. He graduated from the University of Pennsylvania and began to practice in Wabasha in 1870. He was elected to the county medical society in 1870 and the state society in 1871. In 1875 he moved to Winona. (See Winona County).

William H. Lincoln, the son of W. L. Lincoln, was born in 1857. He was graduated from Rush Medical College in 1882, and located in Wabasha to practice in 1887. He specialized in surgery and later established branch offices at Lake City, and at Mondovi, Wisconsin. Dr. Lincoln was a member of the Wabasha County Medical Society (1888), a member of the pension board (1889), and of the state medical association. In 1888 he was elected mayor of Wabasha. In 1895 he opened, in Wabasha, the Lincoln Hospital, a modern institution which was especially equipped for the treatment of surgical cases. Dr. Lincoln died in 1916.

William L. Lincoln was born in West Townsend, Massachusetts, in 1824 and graduated from Harvard in 1850. He practiced for two years at Winchester, Massachusetts, and was a member of the state medical society there.

He also was the assistant physician at the Insane Asylum of Fulton, Missouri, for about a year and a half. In the summer of 1857 he located in Wabasha where he remained, with the exception of the period of his service as surgeon of the Seventh Minnesota Regiment of Volunteers during the Civil War and a temporary stay in Ottawa in 1873. He served on the Wabasha city school board and was active in local Republican politics. He became affiliated with the Wabasha County Medical Society (1872) and the Minnesota State Medical Association (1870), serving as president of the latter in 1883-84. He was a trustee of the Minnesota Hospital for the Insane at St. Peter and was in charge of the asylum in 1879, during the absence of the resident physician. In 1879, in a farmhouse in the country, Doctor Lincoln, assisted by F. W. Van Dyke, performed the first laparotomy in the county and one of the first in the state. The case was one of intestinal obstruction due to a loop of the intestine being caught in a hole in the mesentery. The operation was successful. Doctor Lincoln died in 1889.

William Lindenburg, a German physician, came to Wabasha in 1862 from Winona and stayed about two years. He received his medical training at the Universities of Göttingen and Hanover.

W. D. Little came to Mazeppa in 1881, in the midst of a diphtheria epidemic. In 1883 he attended the College of Physicians and Surgeons in Baltimore and was licensed by examination the following year. In 1890 he served as a county physician. About this time, he moved from Mazeppa to Zumbro Falls.

Ostrom Steven Lont was the first physician in Mazeppa, where he settled in 1856. He was not a graduate of any medical school, and he admitted he was not much of a surgeon; but by his genial temperament and a conservative practice, he won many friends; and his buggy and pill box were familiar objects to the people of the vicinity. During the seventies, he ran a drug store. In 1880, he served as president of the Wabasha County Medical Society. After many years in Mazeppa, he moved to Long Beach, California, where he died in the early nineties.

Quincy A. Low graduated from Long Island College Hospital in 1873 and settled at Wabasha the next year. He was elected to the county medical society in 1874 and the state society in 1877, and served as a member of the pension board in the early 1890's. He remained in Wabasha until about 1900, when he moved to a farm near Crookston.

——McThurston came to Wabasha about 1852 from Ireland. He was the first to announce himself as a physician; however, his stay was short and his qualifications remain unknown.

Newton McVey graduated from the Medical College of Ohio in 1875 and came to Wabasha. In 1875 he was elected to the county medical society and in 1876 to the state medical association. He remained in Wabasha for a number of years, later going to Kansas City.

(To be continued in the December issue)

President's Letter

COMPLETING THE SURVEY

When medical officers come home from this war, specific information is going to be ready for them on nearly everything they need to know to establish or re-establish themselves in the practice of medicine. Gathering such information is part of the work now going forward under the Committee on Postwar Medical Service of the Minnesota State Medical Association and of a like committee of the American Medical Association.

In Minnesota, we have the distinction of being one of the first associations of the country to embark on such a survey. Our survey, however, is broader in outline than many studies now being conducted. It has a double objective, each part of which complements the other. While our medical officers are being asked by questionnaire what their plans for the future are, county medical advisory committees all over the state are being asked to make comprehensive surveys of services and opportunities in their own counties and also to provide their opinions, based upon factual studies, as to the adequacy of their facilities now and for the future.

The survey is not yet complete though 700 of the 1,000 questioned in the military services have already returned their questionnaires—a remarkable response.

About fifty of the eighty-four county medical advisory committees in the rural counties of the state have completed their county studies. Out of these completed studies have come some important information on future needs which will be used by the committee and the association as the basis for their program of improvements and extensions in health services after the war. Obviously these studies must be complete for the entire state in order to be valuable; and the other thirty-four committees whose returns are still missing must be urged to complete their work as soon as possible.

The importance of this study to the future of our public relations as a medical organization should be manifest to every member. The ability and inclination of organized medicine to assume leadership needed for the solution of the economic problems of medical practice has been challenged on every side. This survey will make it possible for us to demonstrate the public conscience and capacity of our medical organization to take the initiative in securing the best possible health and medical service for the people of Minnesota.

E. Brendel Mendelsohn Jones

President, Minnesota State Medical Association

Editorial

CARL B. DRAKE, M.D., *Editor;* GEORGE EARL, M.D., HENRY L. ULRICH, M.D., *Associate Editors*

FEWER DEATHS FROM APPENDICITIS

THERE is no more treacherous disease than appendicitis. By the same token, there are few conditions more difficult to diagnose accurately. Every general practitioner can attest these statements from his own experience.

The rapidity with which an appendicitis can progress to rupture and peritonitis, thereby complicating the operative treatment, places the attending physician on his mettle when confronted with a suspected case. The most significant symptom of appendicitis is the persistence of tenderness over the appendix. Pain is doubtless the next most important symptom, and the two symptoms are more important than elevation of temperature and leukocytosis, which should be considered as confirmatory when present.

Although appendicitis became a clinical entity before the turn of the century, the mortality from appendicitis showed little decline until recently, much to the disappointment of the profession. It is, therefore, a matter of considerable satisfaction to learn from a recent analysis of statistics presented by the Metropolitan Life Insurance Company,* that the mortality from appendicitis has markedly declined during the past fifteen years. The death rate among this company's policy holders fell from 14.4 per 100,000 in 1929 to 5.2 in 1943, a decline of nearly two-thirds. Most of this decline was achieved in the last four years. The decline was less in children under five and in adults over forty-four, and the reason given for this is that in these age periods, intestinal disturbances are more frequent, and appendicitis is more likely to be overlooked.

The incidence of appendicitis is probably on the increase, which makes the reduction in mortality the more satisfying. The reasons for the improvement, according to the analysis, are due to two main factors: the earlier diagnosis and operative treatment of the disease and the education of the public to the danger of laxatives in suspected cases. So well has the laity been educated as to symptoms of appendicitis that frequently they themselves make the diagnosis and call the physician early. This enables the surgeon to operate early before complications arise. Statistics show conclusively that the administration of cathartics add to the mortality from the disease. Doubtless, chemotherapy has reduced the mortality markedly in cases complicated by peritonitis.

There is no better example of the value of education of the public in matters pertaining to health than in this reduction in the mortality from appendicitis.

*Statistical Bulletin, Metropolitan Life Insurance Company, 25:1, March, 1944.

PREPAYMENT OF MEDICAL INSURANCE

THE rapid expansion of prepayment insurance plans to provide for unusual medical costs is not generally appreciated. These costs usually include hospital care and frequently surgical operations, and this is the field in which expansion of medical insurance has for the most part, taken place.

Employers have more and more come to realize the desirability even from a financial standpoint of providing at least in part for such insurance. In the adjustment of industry after the war, there will be need for co-operation between employer and employe in order to avoid chaos, and one way in which both parties can and doubtless will co-operate is in the expansion of medical insurance.

The recent growth of the Blue Cross Hospital Insurance Organization throughout the country has been outstanding. It provides, at low cost, insurance against the need for hospitalization, and at present, protects about 15,000,000 individuals. The cost has been kept low because it is nonprofit in nature, insures individuals in groups and eliminates to a large degree the costs of selling policies. Membership is about equally divided between employes and their families. Additional policyholders are being added at the rate of about 50,000 a week. The plan has been instrumental in taking many hospitals out of "the red" and has maintained many individuals in the role of private patients.

The Blue Cross Organization is not the only one providing hospital insurance. Some of the larger insurance companies like the Equitable, Metropolitan, Prudential, Travelers, and the Aetna provide hospital insurance for about 15,000,000 more, for the most part through group policies.

The establishment of prepayment medical insurance has not been limited to provision for hospital care. Some of the policies issued by the large insurance companies provide for medical costs, particularly for surgery and obstetrics. Just as the hospitals developed an organization for providing insurance against hospital bills, by 1941, some twenty medical societies had taken steps to organize prepayment programs. Today about sixteen medical societies provide for a million policyholders. Michigan, California, New Jersey, Pennsylvania, Massachusetts, and Colorado all have statewide organizations, some known as the Blue Shield.

Michigan is a good example. An organization known as the Michigan Medical Service was founded in 1940 by the Michigan State Medical Society as an independent organization backed by the medical services of the enrolled members of the State Society in lieu of insurance capital. Possible losses were provided for by a pro rata reduction in medical fees, and there were losses at first. This was found to be due to insuring nonsurgical risks. These policies, besides constituting a loss, were found to be much less popular and were subsequently abandoned. The Michigan Medical Service has a growing membership of 630,000 and is now financially sound. It insures the same groups as the Michigan Hospital Service and uses the same office staff for collections but remains a separate organization. The low overhead enables the organization to provide medical insurance for $1.60 a month for man and wife, and $2.25 a month for a family.

The Academy of Medicine of Cincinnati has just endorsed a plan by which a mutual insurance company, in co-operation with the Blue Cross Plan of Ohio, will undertake to provide surgical and obstetrical service for members of the Blue Cross Plan. The United Medical Service, Incorporated, of New York, providing medical insurance limited to obstetrics and surgery with physicians' fees based on the workmen's compensation schedule is at present insuring 56,000 individuals and is affiliated through the organization of the Associated Hospital Service of New York.

Thus a good start has been made in providing medical insurance in addition to hospital insurance for families with moderate income. Other states will doubtless follow with state-wide organizations similar to those already proven financially sound, and there is every reason to believe that additional insurance companies will offer policies similar to those now obtainable. While, so far, most medical and hospital insurance policies are written for groups of employes, it is highly desirable that they be available for individuals at low cost. The expansion of voluntary medical and hospital insurance plans on a broad scale by insurance companies, as well as nonprofit organizations sponsored by state medical associations, should obviate any need of compulsory government insurance.

DIET DEFICIENCIES

Swiss physicians report that diet deficiencies in France in calories, protein, minerals and vitamins are producing deficiency diseases, delaying growth, and greatly lowering resistance to acute and chronic infections in French children. Tuberculosis, rickets, scurvy and dermatitis are rapidly increasing, and living conditions as well as hunger are having a serious effect on delinquency and on the mental and social attitudes of children. In some countries there are reports of alarming increases in vision and hearing defects. In all these countries hunger is combined with suffering from cold, due to lack of fuel for homes and to lack of clothing and shoes.—MARTHA KOEHN, Ph.D., *Ohio State Medical Journal*, September, 1944.

SOME RECENT ACTIVITIES OF THE AMERICAN MEDICAL ASSOCIATION

(Continued from Page 915)

exists for utilizing this situation to get better distribution of physicians throughout the nation.

The Board of Trustees of the American Medical Association has already indicated that it will be willing to establish an agency in the headquarters office for the specific purpose of aiding men who have given their services to the nation in the armed forces. This action is far-sighted, as have been many other activities carried on in recent years under the direction of the Board of Trustees.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

PREPARE FOR LARGER RESPONSIBILITIES, APHA SAYS

The strategy of backers of the Wagner-Murray-Dingell Bill is now unfolding. The latest step is the adoption by the governing council of the American Public Health Association of recommendations for a compulsory sickness insurance program which faithfully reflects the provisions of the bill without naming it.

It is clear that the action taken by the governing council, in the name of the association, did not reflect the opinion of the membership. It was the opinion, rather, of a small, closed group, as noted in a recent editorial in *The Journal of the American Medical Association*. Members of the governing council are not elected by the general membership of the American Public Health Association. For the most part, as the editorial pointed out, they are "men long committed to federal compulsory sickness insurance and to federal control in all matters in the health fields."

Lead Opposition

Physicians in Minnesota will be interested to know that Dr. Haven Emerson, acting head of the Department of Public Health of the University of Minnesota and an outstanding authority in public health, led the opposition to the action taken by the American Public Health Association's council.

Dr. Emerson has long been a member of the association and is chairman of a committee which is now making recommendations for extension of organized public health units in the United States. He is known to favor establishment of prepayment plans to cover costs of medical service, but solely on a voluntary basis and under medical sponsorship. For the extension of public health units he firmly advocates financing by counties and states instead of the federal government. It is safe to say that the view of Dr. Emerson, rather than of the governing council, reflects the opinion of the majority of state health officers and others who make up the rank and file of the membership.

At the same time, the action of the council is timed well for purposes of getting legislation through the Congress and it will undoubtedly be used by proponents of the Wagner-Murray-Dingell Bill as proof that enlightened public opinion is with them.

Briefly, the program adopted by the council of the American Public Health Association recommends the following:

1. That a national plan be adopted aiming to provide comprehensive medical and health services for all the people in all areas of the country.

2. That these services be adequately and securely financed through social insurance, supplemented by general taxation, or through general taxation alone.

3. That public health agencies, federal, state and local, should carry the major responsibility for administering health services in the future and that public health officials should begin training their staffs and themselves, now, to discharge these larger responsibilities.

4. That, preceding or accompanying the development of the plan to finance and administer medical and health services, a program should be developed for construction of needed hospitals, health centers and related facilities, with federal aid to the states on a matching basis, the U. S. Public Health Service to administer the construction program at the federal level, in co-operation with the federal agencies responsible for health services and construction.

5. That the health agency authorized to administer the over-all program should have the advice and counsel of a body representing the pro-

fessions, other sources of services and the recipients of the services.

6. That provision be made for postgraduate training of professional and administrative personnel. As a corollary, state health departments are urged to utilize training funds now available to train personnel in techniques of administration of health and medical services and for hospital and health center administrators and nursing supervisors.

Health Plan is Rich Prize

Obviously, the governing council of the American Public Health Association regards a national plan of the scope outlined as a rich prize for the administrative agency lucky enough to fall heir to it. The council relishes the prospect of snaring the prize for the public health service and the state agencies from among which its membership is recruited. It is urgent in its exhortation to public health officials to be prepared.

"Preparation should be undertaken now," says the council in these recommendations," because, when the public comes to consider where administrative responsibilities shall be lodged, it will be influenced in large measure by the readiness for such duties displayed by public health officers and by the initiative they have taken in fitting themselves for the task."

MORE MEDICAL SERVICE PLANS

There is no doubt of the widespread interest among medical organizations in new methods of distributing costs of medical service. Scarcely a medical journal or a county bulletin gets into print these days, which does not have a report on prepaid medical service plans, either in operation, or on the way, or under consideration.

A few of these plans offer complete medical service; but most of them are limited, for the present at least, to surgical, or medical and surgical, services in the hospital. Most of them are on a service basis; but a few are like the plan just launched by the Toledo Academy of Medicine which is on an indemnity basis with financial backing from an insurance company.

In New York state, two medically sponsored plans which have been coasting along with indifferent support from the physicians as well as the public, have been spurred by Mayor La Guardia's plan for New York City employes, to combine for an active promotion campaign. Incidentally, the Mayor's plan is now making application for its charter of operation. As submitted to Albany, the plan is reported to call for a panel, instead of for free choice of physician. The income limit is said to remain at $5,000 for each subscribing family, in spite of opposition to both provisions by New York medical societies.

Human Trait

The fact is, that there is increasing public interest, also, in new plans for distributing costs of service. The poll of the National Physicians' Committee, among others, has shown that a large percentage of the people of the United States would favor an insurance plan for medicine. What these people have been reading in popular magazines since that poll was made, last year, and what they are hearing over the air is leading them to look for the development of more insurance plans and to take it for granted that such mechanisms will be set up soon everywhere, either on a voluntary basis under medical sponsorship or, failing that, by an act of Congress under the social security program. It should never be forgotten, in that connection, that it is a common human trait for people to approve many things in theory which they will not go out on their own initiative and secure for themselves. Thus, a vigorous selling campaign is always necessary to enlist subscriptions even from the people who vote in favor of voluntary medical insurance plans in the polls.

"What the People Want"

It should be kept in mind, too, that the common man in the street is already conditioned to the idea of government benefits of many kinds. He cannot be counted upon to differentiate much between the relative soundness of old age benefits, as opposed to medical benefits, under social security. And apparently he would like both. If he is already enrolled in a hospital insurance plan, he will probably be glad to get his medical benefits in the same way. It will not be too difficult, either, to interest him in the advantages of freedom from red tape and in the personal liberty of choice with a high type of service which go with voluntary plans, even if he has had no experience with hospital plans.

But if no voluntary plan is offered, it is not likely that he will reject the idea of benefits pro-

vided by the government on the score of anything so remote from his comprehension as the danger to standards of medical practice. He firmly believes that America is a land of miracles and he will confidently expect American ingenuity to provide both the benefits and the type of service he wants.

As Mr. John R. Little told California physicians in a report reprinted in these columns last month: "What the people want they usually get. If they want health insurance by act of Congress, they will get it. And the only real protection is to sponsor and set in motion better plans and sounder instrumentalities to satisfy that want."

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

J. F. Du Bois, M.D., Secretary

Duluth Woman Sentenced to Two-and-One-Half-Year Term on Narcotic Charge

Re State of Minnesota vs. Dorothy M. Johnson, also known as Mrs. Henry Johnson

On September 18, 1944, Mrs. Dorothy M. Johnson, thirty-nine years of age, 1005 E. Superior Street, Duluth, was sentenced to a term of two and one-half years in the Women's Reformatory at Shakopee, following her plea of guilty to an information charging her with the crime of obtaining narcotic drugs by false and fraudulent means.

At the request of the Minnesota State Board of Medical Examiners the Federal Bureau of Narcotics investigated the activities of this defendant resulting in her arrest on September 15, 1944. The defendant has two previous convictions for similar offenses, the first one being on May 7, 1943, when the defendant pleaded guilty in the District Court of St. Louis County, and was sentenced to a term of one year in the Women's Reformatory at Shakopee. The sentence was suspended on condition that the defendant take treatment for drug addiction at the Willmar State Hospital. On December 8, 1943, Mrs. Johnson pleaded guilty, in the United States District Court at Duluth, to a conspiracy charge under the Harrison Narcotic Act. Sentence was deferred until June 12, 1944, during which time the defendant was at the Willmar State Hospital. On June 12, the defendant was placed on probation for five years. However, Mrs. Johnson soon reverted to the use of morphine, resulting in her arrest on September 15, in the present case. At the time of the last arrest, Mrs. Johnson was using the name of Murphy to obtain prescriptions from Duluth physicians for morphine.

* * *

Minneapolis Man Sentenced To One Year Workhouse Term for Violation of Basic Science Law

Re State of Minnesota vs. Elmer C. Hultgren

On October 17, 1944, Elmer C. Hultgren, thirty-six years of age, 1800 Park Avenue, Minneapolis, was sentenced to a term of one year in the Minneapolis Workhouse by the Hon. Vince A. Day, Judge of the District Court, following the defendant's plea of guilty to an information charging him with the crime of practicing healing without a Basic Science Certificate. Hultgren was arrested on September 16, following his attempt to perform an abortion on an unmarried woman at the defendant's apartment for which he received a sum of $20.00. The woman became ill and was hospitalized.

Hultgren stated that he was born in Chicago, Illinois, but had lived in Minneapolis several years. He admitted that he had no medical education of any kind. He stated that three or four years ago he attempted to perform an abortion on another woman and that these two cases were the only ones in which he was ever involved.

* * *

Minneapolis Masseur Pleads Guilty to Practicing Without License

Re State of Minnesota vs. Clarence E. Evansen

On September 11, 1944, Clarence E. Evansen, forty-four years of age, 2012 Park Avenue, Minneapolis, entered a plea of guilty in the District Court of Hennepin County to an information charging him with the crime of practicing massage without a license. Judge Vince A. Day ordered the defendant to submit to a mental examination and on October 5, 1944, sentenced the defendant to pay a fine of $50.00 or serve three months in the Minneapolis Workhouse. On October 7, the defendant paid the fine.

Evansen, an employe of the Minneapolis Honeywell Company, was arrested at the same time Gertrude Smith, 608 Nicollet Avenue, Minneapolis, was arrested on a similar charge, and who pleaded guilty on August 19, 1944. Evansen admitted that he had no training in massage but became interested in it through the taking of massage treatments himself. He advertised in one of the Minneapolis papers for girls to give massage treatments and the matter was reported to the Minneapol Police Department. The investigation resulted in the arrest of both Evansen and Mrs. Smith when it was discovered that Evansen had a key to the massage parlor operated by Mrs. Smith.

IMMUNIZATION VIRTUALLY ELIMINATES TETANUS IN ARMED FORCES

Tetanus has been virtually eliminated from our armed forces as a result of compulsory immunization, Major General Norman T. Kirk, USA, Surgeon General of the Army, says that not a single case has been reported among completely vaccinated troops and there has been only a handful of cases throughout the entire Army. These occurred prior to vaccination or before the immunization process had been completed. The Navy, which also requires tetanus immunization process, has had no cases of the disease among sailors or Marines wounded in combat up to September 15, 1944, according to the Navy Bureau of Medicine and Surgery.

The most recent account illustrating the value of tetanus immunization was given in the report of a Navy medical officer who served aboard a hospital ship on which 284 Japanese and 384 Americans, all wounded in the same engagement, were being treated. Fourteen cases of tetanus, ten of which were fatal, occurred among the Japanese. None of the Americans developed the disease. Army medical records indicate that the Japanese do not immunize actively against tetanus.—Office of Surgeon General, News Release, October 16, 1944.

Minneapolis Surgical Society

Meeting of May 4, 1944

The President, H. O. McPheeters, M.D., in the Chair

CONGENITAL VARIATIONS OF THE EXTRA-HEPATIC BILIARY TRACT

A Review

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In presenting a review of developmental anomalies of the biliary tract it occurred to the writer that these might be classified on an embryologic basis in terms of the following processes: (1) faulty resolution of the solid epithelial stage of the biliary tract; (2) emergence of bilaterality or of dichotomy; (3) disproportionate growth of embryonic parts; (4) persistence of parts that usually disappear; and (5) heterotopic growth.

In the first category might be placed *agenesis* of the gall bladder and of the duct system, together with the types known as *bilocular gall bladder* and *septate ductus choledochus*. At first hollow, the embryonic gall bladder, cystic duct and common ducts soon become solid epithelial structures by the migration of parietal cells of the tube into the lumen.[2] After a short but varying period the solid core becomes vacuolized and the lumen is re-established. If this fails to occur it is thought that the epithelial organ is resorbed. If a double row of vacuoles appears, and persists, a septate or bilocular organ results.[3]

In the second category belongs the *vesica divisa* or bilobed gall bladder. At the time that the pars cystica of the hepatic diverticulum appears it sometimes arises directly as a bilobed organ, with right and left lobes lying immediately above the right and left lobes of the ventral pancreas.[1,3] This is probably to be considered as an expression of bilaterality. In some cat embryos one or both lobes become further subdivided to form a *trilobed* or *quadruplicate gall bladder*. In man, the vesica divisa is much rarer than the double gall bladder.

The third category contains by far the largest range of anomalies. Disproportionate growth of the epithelial gall bladder within its slower growing connective tissue fossa, produces many kinked and bizarre shapes and such fixed forms as *the folded fundus* ("phrygian cap").[4] It is the commonest major anomaly of the human biliary tract (2 to 4 per cent). Not many years have passed since German clinicians were advocating its removal to alleviate obscure gall bladder symptoms. Here also belongs the more striking types of *double common bile duct*, to be explained by aberrant growth of the transitional zone between the foregut and midgut, whereby in very early embryonic stages the hepatic diverticulum becomes separated into two portions, one half being left to empty in or near the stomach and the other half being pushed down with the duodenum.[4]

Finally, disproportionate growth also explains the complete *involution of the ampulla of Vater* which occurs in about 30 per cent of individuals.[5,6] In early stages, bile and pancreatic ducts join outside the intestinal wall. Consequently the ampulla is coextensive with the whole of the oblique passage through the wall. As development proceeds, the connective tissue wedge between the ducts cleaves deeper and deeper until in many instances it reaches the tip of the papilla, thus causing bile and pancreatic ducts to empty separately.

Persistence of passages or structures that usually disappear in the course of development, causes still other anomalies. Thus the ampulla of Vater soon after it is formed (hepato-pancreatic duct) acquires *two intestinal orifices*. This is due to the fact that following the stage when the lumen of the duodenum is plugged by an ingrowth of epithelial cells (15 mm. embryo) two channels of coalescing vacuoles appear and the ampulla establishes communication with each.[6] Subsequently the lower orifice disappears but in about 1 per cent of individuals two openings remain. Again, about the same stage a chamber normally develops at the junction of the common hepatic, bile and cystic ducts which has been named the hepatic antrum.[3] In the pig embryo it is very large. In the normal course of events it participates in the formation of the junctional portions of these three ducts. But should its resolution be delayed and it remain as a large chamber placed athwart the outlet of the cystic and hepatic ducts, it might well provide the initial stage in the development of an *idiopathic cyst of the common bile duct*.

The last category, heterotopic growths, comprises such anomalies as the accessory gall bladder, the pancreatic bladder, accessory hepatic and cyst-hepatic ducts, and accessory pancreatic nodules of the gall bladder. In several species of mammalian embryos accessory gall bladders may be stimulated to arise where ducts or hepatic cords come into contact with invading connecting tissue. Accessory gall bladders[2] may thus bud from (1) the cystic, hepatic and common ducts (the *ductular gall bladder* of man and other mammals), (2) from the neck of the gall bladder in association with cyst-hepatic ducts (the *diverticular bladder* of cattle and pigs), (3) from trabeculae bordering the fossa vesicae felleae (the *trabecular gall bladder* of cattle, sheep and cats) and (4) from portal diverticula of the left ventral pancreas (the *pancreatic bladder* of cats.)[1] In man the corresponding lobe instead of growing into the porta hepatis may grow around the left side of the duodenum to form an *annular pancreas*. Similarly, liver cords near portal canals may develop into *accessory hepatic ducts;* those bordering the fossa of the gall bladder may become the *"vasa aberrentia"* (and the epithelial-lined cysts) sometimes found in the adventitia of the human

gall bladder; and the neck of the vesicle may give rise to cords which differentiate into *cyst-hepatic ducts.* Finally, *multiple outgrowths of pancreatic tissue* may appear in the wall of the human gall bladder in the form of an aggregate nodule which in external appearance simulates an appended lymph node.[7]

In conclusion it should be pointed out that under the compulsion of brevity mention of other theories that have been advanced to explain some of these anomalies has had to be omitted as well as the fact that more than one process may be involved in the production of a single malformation. Nor has it been within the province of this review to discuss the fundamental causes of aberration. Nevertheless it is apparent that variations of the biliary tract may be readily grouped into several developmental patterns.

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COMPLICATING FACTORS IN SURGICAL DISEASES OF THE BILIARY TRACT

Report of Cases

WILLIAM A. HANSON, M.D., and L. H. FOWLER, M.D.*
Minneapolis, Minnesota

Case 1.—W. D., a white man, aged fifty-eight, was admitted to the hospital April 9, 1936. He had had multiple attacks of gall-bladder colic with diagnosis of large biliary calculi present in the gall bladder and was advised to have a cholecystectomy. The present attack began five days previous to admission to the hospital, for which he took his "usual home remedies." He complained of considerable generalized abdominal pain of continuous character which was most marked in the right upper abdomen. His pulse on admission was 100 per minute, temperature 99.4, respirations twenty per minute and his blood pressure registered 122 systolic and 70 diastolic in mm. of mercury. The abdomen showed a marked distention with tenderness in the right upper quadrant and slight rebound tenderness was present. There were no visible peristalsis present and no borborygmus heard. A diagnosis of rupture of the gall bladder was made and intestinal obstruction which was confirmed by roentgenograms. Inasmuch as he was not seen until five days after his acute episode with complications, conservative treatment was instituted, consisting of nasal suction, small doses of dilaudid to minimize the pain, external heat to the abdomen, etc. His general condition remained about the same until April 17, when he had a rather large defecation, noting that he passed a large mass which proved to be the large calculus shown here, and during the next twelve hours he passed a second calculus. Following this his distention, pain, et cetera, disappeared with general improvement, so that he left the hospital the twelfth day following his admission.

Subsequent examinations showed a small gall bladder but no definite evidence of communication between the gall bladder and the transverse colon which was thought to be the site of perforation from the gall bladder, and he had no complaints. This case I believe is of interest due to the size of the two large biliary calculi which measured 5 x 12 cm.

*Colonel L. H. Fowler is now with Base Hospital 26.

Case 2.—F. L., a white man, aged fifty-six, was admitted to the hospital October 22, 1943. His past history revealed a previous operation for right indirect strangulated inguinal hernia.

He had complained of several attacks of right lower quadrant pain associated with some nausea and vomiting and constipation. X-ray examination with barium enema revealed a calcified body with a non-calcified center posterior to the cecum.

On October 27, 1943, under spinal and cyclopropaine anesthesia the abdomen was explored. The cecum and ascending colon were found densely adherent, but the appendix was not found; therefore the cecum and ascending colon were mobilized, and the appendix was found retrocecal containing a mass. The appendix extended upward making a semi-circle with the mass in its center. After considerable difficulty the appendix containing three calculi, the largest 1.2 x 1 cm., and the smallest .5 in diameter was removed. These we thought were biliary calculi which had passed down into the appendix with subsequent rupture of the appendix. Due to the large size of the stones the posterior cecum and ascending colon were investigated, but no evidences of rupture could be ascertained. Three grams of sulfathiazole and two drams were placed in the posterior cecal space and the abdomen was closed in layers.

The pathological diagnosis was "a subsiding perforated appendicitis with gallstones." His convalescence was normal for two days when he developed a respiratory complication due to a complete atelectasis of the right lung which responded to bronchoscopy and aspiration of foreign material, with recovery in three days. He was dismissed from the hospital on the fourteenth day postoperatively, feeling well. Subsequent x-ray studies showed no evidence of fistulas, communications between the duodenum and the gall bladder and no air or barium in the gall bladder or bile ducts.

Comment.—In this case the gallstones probably perforated from the gall bladder into the intestinal tract rather than traversing the biliary ducts into the duodenum and passed into the appendix causing perforation.

Case 3.—Miss H. L. H., white, entered the hospital January 11, 1943, because of severe epigastric pain which had been present for three days. Later she developed right upper quadrant pain which varied in intensity and several attacks of vomiting. Her previous history was negative except for appendectomy in 1938.

Physical examination revealed the following information:

Her weight was 150 pounds, and she was 5 feet 5 inches in height. Her blood pressure was 130 systolic and 74 diastolic in mm. of mercury. Her temperature registered 99.4, pulse 84 and respirations 18 per minute. The skin and the sclera showed a slight yellowish tinge. Her general examination was essentially negative except for a marked tenderness in the right upper quadrant with some muscular spasm. A presumptive diagnosis of catarrhal jaundice was made.

The urine showed no bilirubin but a strong trace of urobilinogen was present. The blood examination revealed a hemoglobin of 11.79 mg., white blood count 4,700, normal differential and red blood count. The bleeding time was 5 minutes, 50 seconds; the clotting time 7 minutes. The stool examination was negative. The serum bilirubin was 4 mg. January 20 the blood examination showed many monocytes with "pmns old and toxic."

January 14, 1943, a cholecystogram showed a poorly-functioning gall bladder, probably with stones.

January 20, 1943, "blood smear showed toxic changes and blood findings not compatible with infectious mononucleosis."

The treatment consisted of intravenous glucose in normal saline, bile salts, hot packs, sedation as needed, proklot tablets and 4 small transfusions.

On February 21, 1943, exploratory operation was advised, and she was operated February 24, 1943: a right upper rectus incision under spinal anesthesia. The gall bladder was slightly thickened and showed slight delay in contraction on palpation but no other lesion was found; therefore cholecsytectomy was performed. On dissecting out the cystic duct a moderate-sized vessel running from the left to the right was found over the common and cystic duct which at first was thought to be the cystic artery, but was later identified as the right hepatic artery in an anomalous position. On further dissection the cystic artery was identified and appeared short and posterior to the cystic duct. Following this the usual dissection was carried out to remove the gall bladder preserving the anomalous right hepatic artery.

No other abnormality being encountered the abdomen was closed in the usual manner by layers. Her convalescence was normal, and she was discharged from the hospital on the twelfth postoperative day. The pathological report revealed "an acute cholecystitis but no biliary calculi." Since her operation she has had no further difficulties.

Summary

Three cases with complications involving the gall bladder have been presented. In the first gallstones perforated into the colon and were passed. In the second case a gallstone most likely perforated into the small or large intestine although it may have traversed the common duct and becoming lodged in the appendix, perforated. In the third case, an anomalous right hepatic artery was found which constricted the common and cystic ducts. From the slides here presented and from Dr. Boyden's presentation one will, I believe, be impressed with the possible complications and anomalies in the biliary tree and its vascular supply which may exist.

Discussion

DR. O. W. YOERG: My patient, to whom Dr. Hanson referred, had an unusual condition, in which a large, misplaced or anomalous artery lay in front of the cystic duct. I was unable to identify its origin.

I started to remove the gall bladder from below upwards, but finally removed it from above downward. No difficulty was encountered and the patient made an uneventful recovery.

GANGRENE OF THE FOOT FOLLOWING CARBON MONOXIDE POISONING

Report of Case

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The case herein reported is of interest: (1) because the complication which developed is rare following carbon monoxide poisoning; (2), because of the question it poses relative to its compensability under the state law; and (3), because anti-coagulants which we now have might have more favorably influenced its course.

There are many complications of carbon monoxide poisoning which are well known, especially those that occur in the nervous system. Gangrene, involving the foot or feet, is a complication which is extremely rare.

In searching the literature back to 1907, four cases were found, one of them being in the German literature. Shillito, et al., made a study of 21,143 cases of gas poisoning in New York City. Of 14,572 who recovered, they found forty-three showing nervous and mental changes. They did not record any which developed vascular damage and gangrene. Consolidation in the right lung a few days after exposure, accompanied by fever, according to Drinker and Cannon, is a common complication.

The method by which it produces its poisoning effect is by forming with the hemoglobin a compound which is more stable than oxyhemoglobin. The affinity of carbon monoxide for hemoglobin being two hundred times greater than that of oxygen, it causes asphyxia by destroying the power of the blood corpuscles to carry oxygen from the air to the tissues.

The symptoms encountered when a considerable amount of this gas has been inhaled are vomiting, langour, headache, debility, et cetera, leading to deep unconsciousness, with shallow breathing, rapid pulse, cold, clammy skin and, finally, death. With active treatment patients in extreme condition often recover; but on account of the stability of the carbon monoxide hemoglobin, the symptoms often are very persistent. This time is very variable and may last from several days to several weeks, when the condition of the patient again gradually becomes normal. This gradual return to normal is not, however, always uneventful. Nervous symptoms even simulating insanity, cerebral hemorrhages usually occurring in the caudate nucleus and optic thalamus, hemiplegia, nutritive changes in the brain and skin, et cetera, all have been recorded as occurring after carbon monoxide poisoning in persons apparently normal up to the time of the accidental inhalation of the gas.

Angus McLean, M.D., of Detroit, reported in the May issue of the *Journal of the American Medical Association*, 1911, a case of gangrene of both extremities following carbon monoxide poisoning. His was a case of a young man, aged twenty-two. Three weeks after the inhalation of the gas he developed a coldness and a numbness in his distal extremities reaching nearly to the knees. Shortly thereafter, extreme pain appeared in the extremities and a gangrenous area developed in the toes which extended up nearly to the knees. Amputation became necessary, and was done about six weeks following the inhalation of the carbon monoxide. He states that this case demonstrates that the effects of carbon monoxide poisoning are more far reaching than is generally supposed. This also demonstrates that although recovery may be apparently complete, yet after a lapse of a few days, even a few weeks, most startling and irreparable damage to the human organism may become evident as a result of the inhalation of this gas. He expostulates on the various theories as to the etiology of the formation of the gangrene, but leans to the theory that it is oxygen deficiency in the tissues of the distal portions of the body.

A German writer reported a case of gangrene in one foot in a child nine years of age, following the inhalation of carbon monoxide. Amputation was necessary and was done seven weeks following the inhalation of the gas. This author had no theory as to the etiology of the gangrene. This article appeared in June, 1921, in "Deutsche Medizinische Wochenschrift."

Sajous states in his "Cyclopedia of Practical Medicine" that thrombi, sometimes causing gangrene, may be formed under the influence of carbon monoxide.

William C. Carey, writing in *Industrial Medicine* in 1940, reported a case of gangrene of the foot following carbon monoxide poisoning in a man of seventy-two years, and he states that it is his belief that the carbon monoxide had caused an arteritis and thrombosis of the dorsal pedis artery. The following is the microscopic report of Carey's specimen: "Popliteal artery shows a constricted lumen due to new formation of fibrous tissue with patchy deposits of calcium, especially in the media. Similar changes in all arteries down to and including the dorsalis pedis and interosseous show, in addition, lumen almost obliterated by new formation of fibrous tissue, upon which is layered an organized thrombus.

Diagnosis: "Arterial sclerosis with obliterating arteritis and thrombosis of the dorsalis pedis artery."

The case I wish to report is that of a man thirty-eight years old, white, married, a service station operator. He entered Asbury Hospital, November 1, 1942.

Report of Case

Family History.—Of no significance.

Past History.—He had measles, mumps and chicken pox in childhood without complications and an acute catarrhal jaundice at the age of thirteen. In 1916 he had acute appendicitis and was operated upon by Dr. Huxley of Faribault; good recovery without complications. In 1929, without having had any preceding symptoms he had a perforation of a peptic ulcer and underwent an emergency operation. In 1940 Dr. Allison reported that the gastro-intestinal x-ray examination was normal. He eats a general diet, has no digestive symptoms and has normal bowel movements. He has no urinary symptoms and no cough or dyspnea. He has never had scarlet fever, tonsillitis, rheumatic fever, nor chorea.

Present Complaint: On October 26, 1942, the patient worked for some hours exposed to carbon monoxide gas. At that time his extremities became weak and numb. On October 27 the symptoms of weakness and numbness were entirely relieved in the arms, but both legs were weak. On October 28 the left leg was cold, weak and numb. I first saw him on that date, and found evidence of impaired circulation in the left lower extremity, and I also heard a heart murmur. He was hospitalized during the next seven and a half weeks, during which time his temperature ranged from 98.8 to 101.2, his pulse from 70 to 90, and his respiration was normal. On admission the intern recorded a soft, blowing systolic murmur heard over the entire precordium. The urine was normal, the blood Wassermann was negative, and a blood culture proved negative. Dry gangrene, appearing first in the great toe, involved all toes and extended up to the tarso-metatarsal joints, where the line of demarcation developed. On November 6 the hemoglobin was 53 per cent, red blood count 3,640,000, leukocyte count 17,000, polymorphonuclears 76 per cent, lymphocytes 16 per cent, monocytes 5 per cent, eosinophiles 2 per cent, basophiles 1 per cent. On November 27 the blood picture was essentially the same.

An x-ray of the left leg showed a slight degree of arteriosclerosis. The patient complained greatly of pain in the left leg and foot and he required rather frequent injections of dilaudid. On November 10 he was given a transfusion of 500 c.c. of blood.

Upon his arrival at the hospital, the leg was elevated and hot packs up to the knee were continuously applied. In addition, hyperemia was used. The blood pressure cuff was placed above the knee, and at fifteen-minute intervals the pressure was raised to 100 millimeters of mercury and kept there for three minutes. This was continued each day for a week's time, after which it was discontinued.

Drs. C. J. Potthoff, H. O. McPheeters and T. A. Peppard saw this man in consultation, and agreed as to the physical findings and to the etiology of the gangrene; that is, they agreed that it was probably a direct result of the inhalation of the carbon monoxide.

On December 9, 1942, six weeks after the inhalation of the carbon monoxide, the left foot was amputated at the tarso-metatarsal junction. The patient progressively improved and was allowed to leave the hospital December 20, 1942.

Dr. Lofsness made sections of the arteries of the dorsum and plantar portions of the foot. These showed organizing thrombi and Dr. Bell believed that the condition represented one of thrombo-arteritis.

Operative Procedure.—Under general anesthesia the flap outline was drawn just above the gangrenous area, all the way around the foot. The flap then was dissected down all around the gangrenous area and to that was pinned with towel clips the sterile glove covering up the necrotic area. The flaps were dissected back on the plantar surface to a depth of the head of the fifth and head of the first metatarsal. The upper flap was slightly retracted. The bones were then sawed off, leaving the head of the first and head of the fifth metatarsal intact, which will preserve some balance for him. The sharp edges of the bone were removed with a Ronguer forceps. The area was irrigated and 4 grams of sulfathiazole put in the wound, and the wound closed with silkworm and dermal. There was considerable tension on the dorsum of the foot, and it was not possible to get perfect approximation of the flap edges. Condition of the patient was good on leaving the operating room.

This case is interesting from the compensation insurance standpoint. It was difficult to convince the insurance company that his gangrene was secondary to his carbon monoxide poisoning, but they finally decided that it was, and the patient received compensation for the time lost.

I believe the slides I am presenting give evidence of an arteritis. The media of the vessels shown is definitely thickened, approximately twice as thick as normal. It is my opinion that the carbon monoxide poisoning has produced an arteritis with thrombosis similar to that found in Berger's disease.

Discussion

DR. H. O. MCPHEETERS: I think that if we had known a little more about heparin and dicumerol we would have used them in this case. If we had used sympathetic block we might have prevented some of the gangrene.

DR. E. A. REGNIER: I would like to ask Doctor Cranmer how he reconciles this pathology with monoxide poisoning. I think there are definite arterial changes here. I think if would be logical to assume this man had the same changes to the vessels of the other leg.

DR. R. R. CRANMER: I think that is a possibility.

DR. REGNIER: You haven't any sections of the veins here, have you?

DR. CRANMER: No.

DR. REGNIER: This doesn't fit the picture of Berger's disease. There are many conditions in which the pathology would be very similar. His pathology is not different from the ordinary type of arteriosclerosis that you see in senility or in the diabetics who develop diabetic gangrene at this age.

If the insurance company had not paid this man, what proof could you have brought about which would have led to the diagnosis of monoxide poisoning as an etiological factor?

DR. CHARLES E. MERKERT: I wonder if anyone has heard of gangrene developing following shoe dye poisoning. We saw many of such poisonings a few years ago. In shoe dye poisoning, there is a tremendous production of methemoglobin—much greater, I believe, than is produced by carbon monoxide gas poisoning. I do not recall, however, that gangrene ever developed in any of those cases. I therefore believe that in carbon monoxide poisoning the loss of oxygen-carrying power of the blood produced by the metahemoglobin formation cannot of itself alone be considered to be the cause of the gangrene.

DR. R. F. MCGANDY: I would like to ask Doctor Cranmer what he feels is the etiological connection between the carbon monoxide and the unilateral gangrene.

DR. CRANMER: We perhaps would have had a hard time to prove the carbon monoxide to be an etiological factor. This particular patient did have some arteriosclerosis. We could see it in the x-ray pictures. He possibly had a similar thing on the opposite foot.

Here we have a man who was poisoned and within twenty-four hours developed some symptoms in his foot. We consulted the literature and found some other cases reported.

A specimen was sent in. Doctor Bell reported arteritis. You do not have arteritis in arteriosclerosis. What produced the arteritis? It is reasonable to suppose it was the gas.

DR. REGNIER: Wouldn't you think the cerebral tissues would have suffered?

DR. CRANMER: We know that most of the symptoms in carbon monoxide poisoning are due to its effect on the brain and spinal cord.

DR. REGNIER: This fellow didn't have any?

DR. CRANMER: No, except temporary unconsciousness. The German writer did not have any theory as to the etiology of the gangrene. The third man said it was thrombo-arteritis. The findings indicate there was some acute process. It isn't arteriosclerosis. It is an acute or subacute process. These cases reported all developed gangrene in a very short time.

When I saw this man first I put the blood pressure cuff on his leg and took readings down to the ankle. Down near the lower end of the leg there was a very definite difference in the oscillation of the needle. This proves that within thirty-six hours he had some trouble in his foot. Maybe he would not have developed it if he had not had some arteriosclerosis.

DR. REGNIER: Had this man been unconscious?

DR. CRANMER: He had not been completely unconscious. He gradually became affected and was taken home at once.

DR. REGNIER: This is an important subject from the standpoint of industrial medicine. I have seen many men with monoxide inhalation but I never saw any bad effects afterwards. From the standpoint of industrial medicine, it is worth investigation. Why isn't there more permanent cerebral damage if it is on the basis of methemoglobin? Why aren't all extremities affected? When was that German report on that child?

DR. CRANMER: I think it was about 1921.

DR. REGNIER: It brings up the question if there was some other thing besides monoxide gas, such as rheumatic heart disease, Berger's disease, diabetes, or chronic arteritis.

DR. CRANMER: These cases were definitely secondary to the inhalation of carbon monoxide gas, I think, and apparently the insurance company thought so in the case I reported, as they have assumed financial responsibility and paid the patient for eighteen months.

DR. H. O. MCPHEETERS: I have had such beautiful results following sympathetic block in phlebitis I cannot but feel we should have done it in this case. In many cases the leg will change from a cold leg to a warm leg and from a warm leg to even a hot leg. In this case it would have been done strictly empirically, since this was an arterial blockage and destruction. In either case it is done with the idea in mind of dilating the terminal arterioles to permit more arterial blood to flow to the part.

CARPAL BONE INJURIES

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The carpus is a composite structure which makes it possible for the hand to be placed in its various functional positions. Injury to any one of the component parts of the wrist usually produces marked functional disturbance. In many cases the disturbance seems to be out of proportion to the sustained injury.

The carpal bones are arranged in two rows: The proximal row consists of the navicular, lunatum, triangular and pisiform. The distal row consists of the greater multangular, lesser multangular, capitate and hamatum. The three bones of the proximal row namely, the navicular, lunatum and triangular, form a convex articular surface which articulates with a concave articular surface formed by the distal end of the radius and the articular disk. The proximal row of carpal bones are not firmly attached to the adjacent bones and participate to a greater extent in the motions of the wrist than do those of the distal group. The bones of the distal group are fixed more firmly by ligaments to the second, third and forth metacarpal bones and consequently act as a fixed unit with the metacarpals.

A great portion of the surfaces of the carpal bones

TABLE I. AGE INCIDENCE

	Percentage of cases	
1st decade, 0 to 10 years	0	
2nd decade, 11 to 20 years	8.9%	
3rd decade, 21 to 30 years	12.5%	
4th decade, 31 to 40 years	19.6%	57.2%
5th decade, 41 to 50 years	37.6%	
6th decade, 51 to 60 years	14.3%	
7th decade, 61 to 70 years	5.4%	
8th decade, 71 to 80 years	1.7%	

is covered with articular cartilage. There is no true periosteum present; a fibrous tissue covers the portion not occupied by the cartilage. The supporting ligaments of the wrist enclose the carpal bones and are attached to them along the areas not covered with cartilage. There is no muscle tissue in contact with the any of the bones. The blood supply is relatively inadequate, coming mainly through the terminal twigs of the radial and ulnar arteries. The blood vessels enter the bones through the ligamentous attachments. The carpal bones are composed of cancellous bone. These factors make for slow or delayed union and in some cases favor the production of nonunion or bony necrosis. Because the blood supply enters through the ligamentous attachment the chip fractures which occur in the carpal bones do disturb the blood supply and sometimes produce prolonged disability.

The actions of the wrist are carried out mainly through the radio-menisco-carpal and intercarpal articulations. It is important to remember the position of the navicular in its relation to the remaining carpal bones. It is located in the proximal row and its distal portion lies in the distal row as well. Because of its anatomical position the navicular is subjected to the mechanical forces of each group. In the case of ulnar or radial deviation of the hand a shearing force is applied to the long axis of the navicular.

The material used in this study consists of thirty-three cases occurring in practice with my associate, R. C. Webb, and forty-two case records at Asbury Hospital. The x-ray films of all seventy-five cases were reviewed.

The carpal bone injuries occurred in sixty males and fifteen females, the males predominating four to one. Most of the males were individuals who used their hands for heavy work.

The majority of the injuries occurred in the fourth and fifth decades. It has been stated that these injuries occur more frequently in the third and fourth decades. These injuries may occur in any period of adult life. In this series the injuries were about equally divided in the third to the sixth decades with the exception that 37 per cent occurred in the fifth decade.

The seventy-five cases of carpal bone injury consisted of seventy-nine fractures and eight dislocations.

TABLE II. DISTRIBUTION OF CARPAL BONE INJURIES

	Fractures	Dislocations	Per Cent	
Proximal Row				
Navicular (Scaphoid)	38	1	44.8%	86.2%
Os lunatum (Semilunar)	13	7	23.0%	
Os triquetrum (Cuneiform)	16		18.4%	
Os pisiforme (Pisiform)	4		4.6%	
Distal Row				
Greater multangular (Trapezium)	2		2.3%	
Lesser multangular (Trapezoid)	1		1.1%	
Os Capitatum (Os magnum)	1		1.1%	
Os hamatum (Unciform)	4		4.6%	
	79	8		

They were distributed in the carpus as shown in Table II.

The proximal row of carpal bones sustained seventy-nine injuries and the bones of the distal row sustained eight. The bones of the distal row are protected from trauma by being more firmly fixed in their position and thereby acting as a unit with the metacarpal bones.

The navicular, lunatum and triangular bones were injured more frequently than the remaining carpal bones. In this series they sustained 86 per cent of the injuries. It is usually stated that the navicular bone is the one most frequently injured. Cave[9] reports a series of fifty-two carpal injuries of which 70 per cent were navicular fractures. Hook,[10] reporting a series of 175 carpal fractures, found 82 per cent navicular fractures.' In this study the navicular injuries were 44 per cent, the lunatum injuries 23 per cent and the triangular bone injuries 18 per cent. Any one of the three bones in the proximal row may be injured. The navicular bone was injured twice as frequently as the lunatum or the triangular.

The injuries were about equally divided between the right and the left wrists. There were forty-one in the right wrist and forty-five in the left. This includes one case of bilateral fracture of the navicular.

In this group there were seventy-eight recent injuries and nine old ones. The nine old injuries were nonunions of fractured navicular bones.

Injury of a carpal bone is frequently associated with fractures in other carpal bones or the radius and the ulna or the metacarpal bones. This is readily understandable because the mechanism of injury in the fracture of these bones is usually the same, namely, a fall on a dorsiflexed or volar flexed outstretched hand.

The carpal bone injuries in this group were complicated in 44 per cent of the cases by a fracture in some other bony structure of the wrist. Fractures of another carpal bone and fractures of the radius or of the ulna or both of these bones occurred an equal number of times. The associated fractures ranged

TABLE III. CARPAL BONE INJURIES

Associated Fractures

	Other Carpal Bones	Radius and/or Ulna	Metacarpals	Other Fractures
Proximal Row				
Navicular (Scaphoid)	4	7	1	4
Os lunatum (Semilunar)	5	5		1
Os triquetum (Cuneiform)	6	2		1
Os pisiforme (Pisiform)	1	1	1	
Distal Row				
Greater multangular (Trapezium)			1	
Lesser multangular (Trapezoid)				
Os capitatum (Os magnum)		1		
Os hamatum (Unciform)	1	1	2	1
	17	17	5	7

from a minimal fracture in some cases to extensive comminuted fractures in others. This speaks for the fact that when a carpal bone is injured, the entire wrist structure is subjected to a traumatizing force and in nearly half of the cases may cause a fracture in one or more bones of the wrist.

To insure satisfactory healing, fractures of the navicular should be diagnosed as soon as possible after the injury and adequate immobilization applied. Roentgen examination will make the diagnosis. The roentgen examination of carpus should always include an oblique view so that the navicular is completely visualized and a fracture not missed. In cases where the clinical evidence supports the probability that there is a fracture of the navicular, and the anteroposterior, the lateral and the oblique roentgenograms are negative, taking the roentgenogram with the hand in extreme ulnar deviation may demonstrate the site of fracture. Fractures are frequently missed and the injury is treated as a sprained wrist. The sprained wrist does not get well and subsequent roentgenograms show the fracture with bony absorption or cyst formation in the fragments of the navicular. The common error in the diagnosis of this lesion is one of omission rather than commission.

There are three types of fracture occurring in the navicular: (1) fracture of the tuberosity; (2) fracture of the waist; and (3) comminuted fracture of the body. The fracture of the tuberosity of the navicular is an avulsion fracture which is caused by the pull of the radial collateral ligament when the hand is dorsiflexed and deviated ulnarward. These fractures always heal.

The fracture of the navicular through the waist is usually caused by a fall on the dorsiflexed hand in either ulnar or radial deviation or by a powerful force directed against the heel of the palm when an object is grasped. The fracture is usually a line transverse to the longitudinal axis of the bone. The fracture may occur as a faint line or there may be some separation of the fragments.

A comminuted fracture of the body of the navicular usually occurs when the force of a fall or blow is received with the hand dorsiflexed and radially deviated to the limit. In that position the navicular is fixed and the force is transmitted through the capitate bone against the body so producing the comminution of the spongy bone.

The blood supply of the navicular is obtained from the terminal twigs of the radial artery. These terminal vessels enter the bone along an oblique dorsal ridge where the supporting ligaments are attached. The main artery enters at or near the tuberosity. Obletz and Halbstein[14] studied 297 naviculars and found that in 13 per cent there was no arterial foramina proximal to the waist and in 20 per cent there was only one foramina at the waist or proximalward. Because of this anatomical arrangement a fracture of the second or third type may produce a disturbance of the blood supply in one-third of the cases and may be one of the reasons for the complications that occur.

Fractures of the navicular should be immobilized early and adequately. Early recognition and immobilization will prevent further damage to the blood supply and may in some cases be the factor that will allow healing to occur. Jaekle and Clark[12] reported seventeen cases of fractured naviculars that were treated by immobilization within one hour following the accident. They were immobilized from six to eight weeks and all but two had bony union. Functional results were good in all cases and there was no permanent disability.

An adequate immobilization means the wrist placed in dorsiflexion of about 40 degrees and radial deviation of about 15 degrees. MacConaill[13], at the University of Sheffield, showed in a study of the mechanical anatomy of the carpus, that the carpus participates in a screwvise or clamp action, so that by dorsiflexion the carpal bones are packed closer together and the parts are pressed together and fixed. The distal two-thirds of the forearm, the wrist, the hand to the metacarpophalangeal flexion crease, and the thumb to the interphalangeal flexion crease are enclosed in a plaster-of-Paris cast. The thumb is fully abducted and immobilized so that the motions of the first metacarpal are not transmitted into the carpus. The wrist is immobilized for eight weeks. A leather wrist support with a thumb loop is worn from four to six weeks after the cast is removed.

In case there is no union, or evidence of bone necrosis is manifest at the end of eight weeks the immobilization is continued. At the end of four months if union has not occurred operative treatment may be required.

In this series there were nine cases of nonunion following a fracture of the navicular. Seven patients had had some active treatment and two had had no treatment. In one of the latter two the injury had occurred sixteen years previously and in the other an indefinite number of years previously. The wrist in the first case had limitation of motion but was free of pain. The second case was one that had had bilateral fracture of the naviculars and showed bony absorption at the

fracture line. There was no limitation of wrist motion and there were no symptoms.

One case of nonunion was treated with immobilization in a plaster-of-Paris cast. In two cases the proximal fragment had been excised. In two cases the entire fractured navicular had been excised. Dowel bone grafts were performed in two cases. The two bone graft cases have been followed and these two patients have normally-functioning wrists and are symptom-free.

All these methods have been advocated for the management of ununited fractures of the navicular. Another procedure which has been utilized is the drilling of the fragments of the navicular in the long axis of the bone. This is performed with the idea of improving the blood supply to the bone. All these procedures are followed by the immobilization of the wrist in a cast.

Each method has produced satisfactory as well as unsatisfactory results. The surgical literature contains advocates for each procedure. There is no one procedure that is uniformly successful. In view of the work done on this problem in the last two decades it appears the best results are obtained from using bone grafts, a procedure which was first reported by Adams in 1928.[4] The procedure should be done so that there is minimal surgical disturbance to the carpal structures. The distal end of the navicular is exposed in the anatomical snuff box. The drilling and application of the graft is done under radiographic control. This method has the advantages of drilling the bone, of internal fixation of the fractured fragments and of insuring an adequate local supply of calcium for bone healing. The procedure maintains the navicular in the architecture of the carpus. When the navicular is removed, the hand becomes deviated radialward and the strength of the grip is diminished. This is a definite disability in those individuals who are required to use their hands for heavy work in making their livelihood.

Dislocation of the lunate bone is not a frequent injury of the carpus. In this series there were seven dislocations in the seventy-five cases of carpal bone injuries studied. All the dislocations were to the volar surface of the wrist. This injury causes marked immediate disability in the wrist and hand. The dislocated lunatum encroaches upon the structures in the carpal tunnel. Pressure is produced upon the flexor tendons and may involve the median nerve. A fullness is produced in the front of the wrist, the wrist is stiffened, the grip of the hand is weakened, and motion of the fingers is sometimes restricted. There may be parethesias or anesthesia of the skin supplied by the median nerve.

In the seven cases of dislocation there were five recent injuries and two in which dislocation had been present for six weeks. In three cases there were no associated carpal injury and in four cases the dislocation was associated with a fracture in one of the other carpal bones. The triangular bone was fractured in three cases and fracture of the navicular occurred in one case.

In three of the recent dislocations the lunatum was reduced by a closed method and plaster-of-Paris splints applied. In the other two recent cases closed reduction was unsuccessful and the dislocated lunatum was excised. In one of these cases the fractured fragment of the triangular bone, which was dislocated with the lunatum, was excised with it. In neither of the two operated cases was a reduction of the lunatum possible without injury to the articular surfaces of the lunatum or the other carpal bones.

In the old dislocations of the lunatum, the bone was excised. The normal space occupied by the lunatum had diminished so that it was impossible to obtain a reduction.

A lunatum dislocation should be considered when an injured wrist presents an indurated fullness in the volar surface of the wrist and a marked limitation of flexion. Lateral roentgenograms will show the dislocation.

The treatment of this condition is an early reduction. The reduction will be easier and will be successful more often if it is performed as soon after the injury as possible. If a closed reduction cannot be accomplished after two attempts an operative procedure is indicated. Further attempts at closed reduction may cause irreparable damage to the articular surfaces or to the blood supply and so create degenerative changes.

When an open procedure is done the lunatum should be replaced to its normal position. The carpus will thereby retain its normal anatomical structure and its functions will be preserved. This may not be possible in all cases as the manipulation will cause too much damage to the articular surfaces of the lunatum or of the contiguous carpal bones. An excision of the lunatum under such conditions is indicated. The lunatum should be removed if it is found on exposure to be extensively injured. Degenerative changes frequently occur following such conditions. A painful wrist causing a marked disability results.

Summary

1. A study of seventy-five cases of carpal bone injuries was presented.

2. The navicular fractures had an incidence of 44 per cent.

3. Forty-four per cent of the carpal bone injuries were associated with other fractures of the wrist structure.

4. Most navicular fractures will heal with good function if recognized early and immobilized adequately.

5. Dislocation of the lunatum should be reduced early by closed manipulation. Open reduction is indicated after two attempts at closed reduction have failed.

6. Carpal bone injuries should be suspected in all sprained wrists.

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Discussion

DR. E. A. REGNIER: I think Doctor Anderson should be complimented on his report. He has a large series of cases with accepted methods of treatment and excellent results. I think it should be stressed that many navicular injuries are overlooked because of the failure to take an oblique view by x-ray. In any suspected carpal injury, if x-rays are negative, the wrist should be rerayed in seven to ten days. A fracture line will usually show better after an interval of time.

The meeting adjourned.

ERNEST R. ANDERSON, M.D.
Recorder.

CHANGES IN THE RURAL BIRTH RATE

Dr. Philip M. Hauser, Assistant Director of the United States Bureau of the Census, recently stated, "For a long time the great cities of our country have not even sustained their own population. A disproportionately large birth rate among rural families has kept the national birth rate increasing even though the tempo is slowing greatly. But many of our soldiers today are getting a new experience in life which is bound to have an impact on the postwar world. I firmly believe they will adopt the urban pattern, and the rate of rural births will tend to decline."

Dr. Hauser believes that rural women and girls are also being influenced by their wartime jobs. He thinks it is logical to assume that their changed views of living standards will result in fewer children.

PLAIN TALK. III

There is one good point about being in agreement about something—you can go about your business expeditiously without wasting a lot of time squabbling.

Take voluntary prepaid medical care, for instance. There used to be some doubt and uncertainty about it; would it work? Did the doctors think it a good thing? How did the people feel about it? Would the medical profession support it? That was long ago.

Now the medical profession is squarely behind it, the public wants it, nobody opposes it who is sufficiently informed on the subject to know what it is all about. Take one aspect of it, for example. How can any plan to insure people against illness work unless the doctors are behind it? The whole principle of insurance depends upon *enough* lives, or houses, or automobiles of just plain people who pay premiums to meet the *cost* of the thing they *insure against;* in this case, *illness.* Next there must be enough doctors to treat the people, good doctors, too, or the people won't buy the insurance. Why should they put up with other than the *best* medical care? When they buy something they want the best that can be had. That is why the doctors themselves, through their Medical Society of the State of New York, are sponsoring voluntary prepaid medical expense indemnity insurance. That is why the Medical Society is setting up, right now, a Bureau of Medical Care Insurance with a full-time director so that the people can have the kind of insurance they want, backed by the doctors themselves. Such insurance is *safe* insurance.

Many of you remember the watch that made the dollar famous. It was good because it had responsible people and good workmanship and materials in it. Voluntary medical care insurance backed by responsible doctors is good for the same reason. Such insurance provides medical care of a quality that the doctors, through their State Medical Society, propose to furnish to those who want to buy insurance against illness.

It is not to be anticipated that you can start with a perfected plan. You can start with an actuarially *sound* plan, and you can set your upper limits of acceptance in a manner or at a level to include 94 per cent or thereabouts of all the people in the country. Then, after you have eough subscribers to your plan you can modify the details as may be necessary, and as accumulating *experience* seems to direct. But you certainly cannot go until you start.

Even though the people want prepaid medical care insurance it will take some time to cover 94 per cent, say, of the people of the country, or even of this State. Policies have to be written and marketed. So it's up to us to take the driver's seat and deliver the goods, isn't it? What is to stop us? Nothing that we can think of at the moment. Doctors have never yet been stopped from doing anything which they thought was for the public interest, and for the betterment of the public health, come hell or high water.—Editorial, *New York State Journal of Medicine,* October 15, 1944.

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Rochester, Minnesota

HOUSE OF DELEGATES

Assembly Room
Mayo Clinic
Wednesday, April 12, 1944

(Continued from October issue.)

Wednesday Evening Session

Chairman Will called the meeting to order and, having been informed by Dr. Lexa, chairman of the Committee on Credentials, that a quorum was present, asked Dr. W. F. Braasch of Rochester to introduce the president-elect of the American Medical Association, Dr. Herman L. Kretschmer of Chicago.

DR. BRAASCH: It gives me great pleasure to introduce Dr. Kretschmer because he is one of us and has ascended from the ranks. He has been a leader in organized medicine for many years, having served as treasurer of the American Medical Association for ten years, and he is well acquainted with our problems. He has been good enough to come here and discuss them informally with us. I hope he can point the way to their solution. Dr. Kretschmer.†

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Chairman Will then called for the report of Dr. J. C. McKinley, secretary-treasurer of the Minnesota State Board of Examiners in the Basic Sciences.

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DR. MCKINLEY: The official list of practitioners licensed to practice in this state is not yet off the press and I am therefore unable to break down this year's experience in relation to the licensing of other practitioners of healing. Since 1927 when the Basic Science Board was established, 3,470 individuals have been examined by the Board. At the present time, the number of failures stands at 170, or 4.6 per cent. In the last examination, however, the failure rate was a little bit high, approximately 38 per cent. I don't know whether we were too hard or the examinees were too soft.

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Chairman Will then called for the report of the Minnesota State Board of Medical Examiners which was given by Dr. Adson in the absence of the secretary, Dr. J. F. DuBois, Sauk Center.

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DR. ADSON: During 1943, 232 medical licenses were issued, 107 of them to graduates of the University of Minnesota. The total number of registrations in the state, at the present time, is 4,512. Many of these, of course, are in the service. Many others have moved to other states but maintain their license by registration, here. There are also 162 licensed osteopaths in the state, 378 chiropractors, 128 masseurs and forty-two midwives. From 1927 to 1943, fifty osteopaths have been licensed to practice in the state (eighteen by reciprocity) and thirty-five chiropractors (twenty-two by reciprocity). Several of the latter came from Iowa with which Minnesota has recently terminated reciprocal relations, so far as licensure goes. The basic science examination was passed, this year, by 155 doctors. Twelve doctors of medicine failed to pass that examination.

During 1943, eighty-three doctors of medicine, one osteopath, six chiropractors, one masseur and two midwives died.

Out of forty-two investigations made during the year, eighteen cases came to court with seventeen convictions and one dismissal. There were four revocations of licenses to practice for infringement of the law among doctors of medicine, three suspensions of license and three re-instatements. License of one midwife was revoked. During the period from 1928 to 1943, there have been 238 court cases. Of these, 206 resulted in convictions, thirty-two in non-convictions; and of the latter, thirteen were judged not guilty, fourteen were dismissed and three were not indicted. One jumped bail and one died before court proceedings were completed.

Legal expense for 1943, including attorney's fees, travel, preparation of legal documents, expense of bringing in witnesses and reporter costs, was $7,158.61.

Among other items of interest, during 1943, were the following: sixteen women doctors were licensed in Minnesota during the year; five doctors were certified to other states; six Board meetings, two of them special meetings, were called during the year. One of the latter was called to accommodate University graduates so that they could accept commissions in the military services without delay.

The secretary was appointed to the advisory board of the War Manpower Commission in December 6, 1942, and attended a meeting of the Procurement and Assignment Service in Washington in January, 1943, to discuss adjustments in examinations for candidates for commissions and also legal requirements in Minnesota as to medical courses.

The Board has a working balance on hand at the present time of $12,646.87. Fortunately, reduction of the registration fee from $5.00 to $2.00 has not resulted in the anticipated shortage of funds and the Board has continued to have the means to finance an energetic program for elimination of quacks, cultists and of irregular practices among licensed physicians.

Members of the State Board of Medical Examiners feel that they are a part of the state medical association but, in no sense, do they desire to exert any undue influence over the association. Instead, it is their aim to help their colleagues in the profession in every way possible and, at the same time, to bring about and maintain a high standard of practice in Minnesota.

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Chairman Will then called for a report from Dr. W. F. Braasch of Rochester, chairman of the State Committee on Procurement and Assignment.

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DR. BRAASCH: Much has happened since I made the first report of the committee to the House of Delegates two years ago. Many of the problems then under discussion have since been ironed out; and most of you know, I feel sure, that this committee has tried to coöperate in every way possible and at the same time do its duty toward our country. There is no question but that the profession in Minnesota deserves

†See page 913 for Dr. Kretschmer's address.

great credit for the way its members have supported our country's needs in the Armed Forces. The great majority of the men now serving volunteered early and willingly, and only with a comparative few has it been necessary to use any persuasion. At present there are 1400 Minnesota physicians in the armed services. Before the war, some 3200 were in active practice with about 300 engaged in public health work and as teachers and in allied activities, making a total of about 3500 licensed in the state. Of the 1400 now in the services, about 1300 are on active combat duty, 100 are in public health work and in other government agencies. There are remaining in practice at home about 2100 doctors. Obviously we have done our duty.

The rural areas have undoubtedly suffered most from lack of physicians as a result of the year. There are areas in this state where the ratio is one physician to 5,000 or 6,000 population. In others the ratio is one to 3,000 or 4,000. Deaths of the eighty-three physicians recorded for the year have also left several communities seriously short of medical service. In some areas, this deficiency has been met by neighboring doctors. Through Mr. Rosell's efforts physicians disqualified for military service have been induced to take over a few of these vacant areas. But it has been quite a problem.

Of the total who applied for commissions, 295 were rejected for physical and other reasons. Fifteen men who were in the service have been discharged and returned to practice. We have had some difficulty inducing men rejected for service to establish themselves where they are so greatly needed and there are several areas still without physicians.

During the last year our efforts for recruitment for the armed forces have been directed to men from thirty-eight to forty-five years old. With the aid of the active Officer Procurement Services conducted by Major Bronson and Lieutenant Cassidy, most of the available men have been easily persuaded to apply for their commissions. The central office of Procurement and Assignment sent a recruiting team on tour which visited both Saint Paul and Minneapolis, as part of this effort.

One of the difficult problems of the year was the allotment of a reduced number of interns and residents to the hospitals. As you know, the number of interns available was reduced to 60 per cent of normal and the number of residents to one-third. Allotments for 1944-45 are as follows; interns, ninety-one; residents, 386. Of the residents, 231 were allotted to the Mayo Foundation and the size of that allotment may call for an explanation. At the request of the Director of the Mayo Foundation, am therefore giving you the following brief report concerning participation in the war effort by the staff of the Mayo Clinic and Foundation.

From the permanent staff, forty-eight members have gone into the armed forces. This number includes seven of the senior surgeons in the division of surgery. Several of the other special sections have lost 50 per cent or more of their original staff. In addition, certain governmental agencies, including the National Research Council, have appointed nineteen members of the staff to various responsibilities in which they are engaged in part or full-time service. Of the fellows, 252 have gone into the medical corps of various branches and ninety-two others have already received commissions and are awaiting the call to active duty. That makes a total of 344 fellows and first assistants. The quota allowed to the Clinic is less than 40 per cent of the normal number and this quota has been filled largely from among men disqualified for active duty and from the small group allowed under the 9-9-9 program. No adjustment in the quota was made to take care of the increase in registration at the Clinic. Most of the research activities carried on by the Foundation, except those of a military character, have been closed or temporarily deferred. Since the beginning of the war, the Aero-Medical Unit for Research in Aviation Medicine has been in close cooperation with the Air Surgeon. For this unit, it was necessary to build and equip an addition to the Medical Science building and for various members of the staff, including physicians, physiologists, physicists and technicians, to devote their entire time to the project. Also, contracts have been made with the National Council for Scientific Research and Development and with Wright Field for certain additional investigations in the physiology of high altitude flying, administration of oxygen and use of oxygen therapy, centrifugal force, air embolism and dark adaption, in coöperation with other laboratories.

Courses of instruction for officers assigned by the Surgeons General of the Army, Navy and Public Health Service and the Veterans' Administration have been carried on at the Clinic since January, 1942, during which time more than 1,000 medical officers have received training. Also, in view of the urgent need for physical therapists, a training course was established by Dr. F. H. Krusen, during which, since 1938, 375 technicians and 125 physicians have completed a twelve-month course.

It seems evident, therefore, that the quota of residents and staff members allotted to the Mayo Clinic and Foundation is in keeping with the professional status in other parts of the state.

We, in Minnesota, should certainly coöperate with the committee of the American Medical Association which is directing postwar activities for future rehabilitation of physicians. A state committee could be of great help and the State Procurement and Assignment committee can be of assistance.

I would like to call attention to the fact that some hospitals have failed to take advantage of the opportunity of retaining a third of their interns as residents and so of securing additional help. It should be noted, of course, that proper educational training must be provided; otherwise, there is no excuse for a residency.

On the whole, the profession in Minnesota deserves much credit for its work in support of the Armed Forces. Great credit should be given also to those who have remained in practice here. Many are overworked and worn out. The sacrifice they are making is as great as that of men who have applied for commissions. In closing, I would like to give full credit to Mr. R. R. Rosell and his staff for their efforts in expediting the work of the committee. It is largely due to their efforts that the favorable balance of medical service in Minnesota has been maintained.

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Speaker Will then called on Dr. E. J. Simons, chief of the medical unit of the Division of Social Welfare, for a report of the work of his unit.

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DR. SIMONS: Each year that it has been my privilege to report to you, the director of the Division of Social Welfare has been changed and the previous director has gone into the armed forces. This year Mr. Bernard Levander went into the Navy and the Governor appointed in his place, Mr. Earl Berg, as acting director. Mr. Berg has been employed in the Division of Administration for some years and, prior to this appointment, he served as Chief of the Finance and Management Unit of the Division. He is an auditor by profession and is deeply interested in government economy. Mr. Berg has stated that no changes of a medical nature will be made in the work of the Division of Social Welfare without prior consultation with authorized representatives of the profession and I believe we are extremely fortunate in his appointment.

The Director of the Bureau of Crippled Children also resigned a month ago and his duties are being assumed by the rest of the medical personnel.

There are three bureaus in the unit, the Bureau of Crippled Children, the Bureau of Tuberculosis Sanitoria and the Bureau of General Medical Care. One clinic was added to the usual seventeen held throughout rural Minnesota this year by the Bureau of Crippled Children. About 1,500 children a year are so examined, principally children under twenty-one, with orthopedic defects, who have been referred by their family physicians. In February, 1943, a rheumatic-cardiac program was added to the orthopedic program by the Bureau and, this year, with approval of the Council, pre-cardiac patients have been included. This program operates, for the present, in only six counties of the state. Physicians outside these counties have asked to be allowed to refer patients and the Medical Advisory Committee, therefore, suggested that a record of these requests over a three months' period be kept and, if the number seemed to warrant an extension, that it be brought to the attention of the Council. The Speech Training program of the Bureau has been extended recently in coöperation with the pediatric and psychiatric departments of the University of Minnesota. We have now two Speech Pathologists, one for urban areas and the other for rural areas, travelling in the state.

For the Bureau of Tuberculosis Sanatoria, a uniform system of accounting and bookkeeping is now being developed and will shortly be ready to substitute for the variety of systems now in use. The new system will make it possible to compare costs of care in the various institutions. A change has been made, in accordance with legislation passed at the last session of the Legislature, in the per diem rate for patients at the Minnesota State Sanitorium. On the basis of actual costs, the rate was raised from 1.50 per day, plus incidentals (the rate set in 1925) to $2.99 per day. The statute empowers the director to raise rates, also, in county institutions. But they will be raised only if changes are based upon an actual increase in cost of care.

Two superintendents of county sanatoria have left their positions during the past year and another has announced his intention to leave. Replacements for the first two were found with great difficulty. No replacement has been found for the third who remains at his post but threatens to leave.

The recodification of tuberculosis laws, recommended a year ago by the Council and officers of the Medical Association, is greatly needed but will probably not be done *in toto* this year. The Interim Committee of the State Legislature considered the matter and has requested that the laws be recodified on a segmentary basis and that only vitally necessary changes be made at the next session.

In the Bureau of General Medical Care several changes have occurred during the past year, among them a change in the established optical code for refractions and glasses for indigent patients, to bring it in line with the higher price of materials. The new rates were decided harmoniously by a committee on which ophthalmologists, optometrists and optical houses were represented, under chairmanship of Dr. Adson. Another is the change in method of estimating the amount to be spent for medical care in the budget of recipients of Old Age Assistance. Previously, the physician was asked to make an estimate of care needed for six months in advance. This plan was not satisfactory either to physicians or to welfare officials. As a result of studies done in Pennington County, the plan is now for the physician to send the recipient a bill for services during the previous month. The recipient, in turn, refers the bill to the welfare agent who determines the amount of the budget to be spent for medical care on that basis.

A study of 1500 cases in the program of Aid to Dependent Children revealed the fact that many cases had been denied a grant because blanks used for the purpose did not provide for sufficient medical data. Blanks have now been revised and it is hoped that they will better meet the need.

Discord between physicians and social agencies has occasionally occurred, largely as a result of lack of understanding on the part of both of the procedures involved. An attempt has been made to clarify the laws and regulations for both the physicians and the agencies this year.

Under Public Law 113, passed by Congress last year, vocational rehabilitation has been broadened to include medical rehabilitation. The law is administered by the director of vocational rehabilitation of the State Department of Education and, in conformity with an agreement approved by the Council last year, medical consultation for the program will be provided by the medical unit of the Division of Social Welfare with the advice of the medical advisory committee.

So long as all medical matters handled by the Division of Social Welfare are guided by the State Medical Advisory Committee which now consists of Dr. Adson as chairman, Dr. Coventry, Dr. Sogge, Dr. Wilson of Winona and Dr. Oliver of Graceville, we will have approval of the Council before any extensions or changes are made in our programs involving medical care.

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Speaker Will then called on Dr. A. J. Chesley, secretary and executive officer of the State Board of Health.

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DR. CHESLEY: We are working under difficulties in the State Department of Health. Sixty-five members of our staff are in the armed forces, thirty-one of them overseas. Of these, twelve are physicians and most of them cannot be replaced. Laboratory work in the Division of Preventable Diseases has greatly increased, by reason of the fact that we are doing the work for the armed forces. It will increase still more while the technical staff is being steadily depleted.

Prevalence of communicable diseases in 1943 was unusually small. The total of deaths from tuberculosis, including four deaths of non-residents, was only 750 for the entire state. We had no cases of smallpox and only fifteen cases of typhoid, among which there were no deaths. There were twenty-eight deaths from whooping cough and nineteen, I regret to say, from diphtheria. Recently diphtheria deaths have been running about six or seven a year, part of them due, I believe, to the fact that younger men have had no opportunity to familiarize themselves with clinical diphtheria. Some of last year's deaths occurred in hospitals where the disease should have been recognized promptly, cultures taken and antitoxin administered. One reason why it wasn't done, was, perhaps, that everybody was being treated with sulfa drugs; but sulfa drugs are not effective in the treatment of diphtheria. From the viewpoint of the public, those who died from diphtheria were either too young to be immunized or too old to get diphtheria; nevertheless they died.

There has been a wide prevalence of measles, but relatively few deaths, the number being eighteen, and usually complicated by pneumonia. There were fourteen deaths from poliomyelitis and only eleven from scarlet fever, though scarlet fever was unusually widespread last year.

We are now issuing the combined diphtheria and tetanus toxoid and I hope it will come into general use. We lose approximately twenty people a year from tetanus, here and there, in various parts of the state, and apparently unrelated to any special communities or regions.

In connection with the possible hazard of tropical disease when troops return from the tropics, two members of the staff of the laboratory have taken short courses in army medical laboratories and are prepared to help out in the diagnosis of such diseases and infestations.

The Division of Vital Statistics is seriously undermanned, although, at the peak of the work in 1941 when everybody going into war work required a birth certificate, we had a staff of ninety-two people, part of the time on a twenty-four-hour basis. The staff now numbers twenty-seven, far too small a number for the work, but all we are able to provide for.

There are now forty-four counties with public health nurses, the largest number we have ever had with public health nursing service, in spite of the fact that many nurses have gone into military service. To maintain this service many who were married and had retired or gone into other work have volunteered to help out in the emergency. Miss Ann Nyquist, who is acting head of the division, has done a fine job in maintaining the service and extending it into new fields.

The Division of Child Hygiene has been obliged to administer the EMIC program and Dr. V. O. Wilson, director of the division, has been working nights and Sundays in an endeavor to catch up on payments in connection with that program. I believe I may say that very soon he will be up to date, and you won't have to wait for EMIC payments, such as they are and what there is of them.

Committee meetings being held during this session may result in proposals with reference to EMIC which you will be asked to act upon. I will not go into them now. But you should be interested, in that connection, in the fact that our maternity and infant death rate in licensed hospitals in spite of the fact that the percentage of all births in the state has increased from 43.4 in 1932 to 84.5 in 1943, is still one of the lowest in the country.

Health officers among you will be interested to know that Mr. Whittaker, director of the Division of Sanitation, has developed a new activity in controlling restaurant and food handlers' sanitation, in spite of the fact that most of the trained engineers on his staff have gone into the service. Work in the field of protection of water and milk supplies and the handling of sewage has been kept up also. Courses in food sanitation are now being given under direction of an engineer of the U. S. Public Health Service to representatives of city health departments and others. They began with courses for University people who are concerned in food handling.

Work of the Division of Industrial Health, of which Dr. Foker is director, has been unusually hampered by the fact that nearly all of the men trained in industrial health are young and of military age. About 77 per cent of the requests for service made to that Division come from plant management, a high percentage in comparison with other parts of the United States. Dr. Foker has carried out large numbers of field examinations and laboratory studies and has also carried on a series of lectures and publications in an effort to interest people in the field of public health. There is a bill now before Congress which would provide five million dollars for distribution to labor departments by the U. S. Department of Labor, for safety and compensation work, with laboratory work to be done by the departments of health. By this bill, the public health service would become the handmaid of the Department of Labor which is interested, not in the health field, but in safety and compensation. We are fighting the bill, though it is likely to pass, because we believe that our industrial health work would go to pieces, under it. We have the backing of our people in Congress, especially Dr. Miller of Nebraska, former state health officer, who is presenting a minority report which we hope will carry some weight.

The State Health Department has been instructed to assist in every way possible with carrying out provisions of the new vocational rehabilitation act about which Dr. Simons spoke to you and it has also been instructed to assist by approving relocations of physicians, under the law providing subsidies for establishment of physicians in shortage areas.

The present full-time health districts in Minnesota are limited to four, plus the one which handles all work for the Chippewa Indian Service. I am in the sad position of having to report that three of the four medical officers heading these districts have left and cannot be replaced. At the present time, I am trying to keep the organization intact so that the nursing service, anyway, will not be lost. Dr. Haven Emerson, now taking Dr. Gaylord Anderson's place in the public health department at the University of Minnesota, is chairman of a committee of the American Public Health Association which is working out a plan for full-time health districts all over the country. This plan has the approval, in principle, of the House of Delegates of the American Medical Association. In coöperation with Dr. Emerson, we have worked out a plan for ten full-time health districts here, at some time in the future, and we hope to get aid from the Legislature to extend public health nursing service to all counties.

On May 12 and 13, ten or twelve people of international reputation in the public health field are coming to the University for a seminar on public health administration, and we are calling an executive session of the Minnesota State Sanitary Conference at the same time so that local health officers will have a chance to attend this seminar. At this executive session, the question of pay for local health officers will come up again. Since 1907 there has been a committee working on this question of pay for health officers, and questionnaires have been sent repeatedly to the 686 physicians who are local health officers serving the eighty-seven counties, ninety-seven cities, 632 villages and 750 townships of the state, asking what, if any, remuneration they were receiving. Last year, we had the largest number of returns from this questionnarie. Nevertheless, it is certainly embarrassing, on the basis of the number of replies which came in, even last year, to try to present any kind of proposition for increasing the scale to Dr. Sogge's Committee. We ought to do better. Certainly the health officers will have to decide what they want and then make it possible for somebody to state the facts in such a way that we can get action.

So far as the appropriations for our work which come under Title 6 of the Social Security Act go, we shall have about the same amount next year as this, except that there will be a little bit different distribution.

Col. J. H. C. Moore, Surgeon of the Seventh Service Command, has sent us figures on the incidence of venereal disease in this area in which he says that the ratios for the first two months of 1944 are 50 per cent higher than the corresponding months of 1943. He wishes these figures brought to the attention of the physicians of the state. In Minnesota, our figures for January and February, 1944, showed only two-tenths rise over the figures for the same months in 1943. We averaged in 1943, for primary and secondary infections, about 20.3 cases a month. The added two-tenths doesn't mean much under ordinary circumstances, but, of course, Col. Moore is right in saying that, in these times, we cannot be certain what is going to happen. January and February figures are usually low for the venereal diseases so it is possible that we may have an increase here in Minnesota. The situation is being handled by Dr. Irvine, however, with the assistance of practicing physicians; and I don't think it will be found necessary to establish any public clinics or employ any full-time people for treatment work. If any such changes in the program should be demanded, they will certainly be referred to your Council before any action is taken.

Appropriations for the EMIC program will have a hearing before a committee of Congress on April 27 and 28 and the State Board of Health will meet on April 20. Anything that this House of Delegates decides to do on the matter will be brought to the Board on that date and I am sure will receive a sympathetic hearing. Between July 6, 1942, and April 3, 1944, there was a total of 6,941 applications under EMIC. Of these,

343 were cancelled as ineligible, leaving a total of 6,598 approved cases. We have had $434,350 for the program up to March, 1944, from the Children's Bureau and expect to have $150,000 more, making a total of $587,350, out of which payments were made, up to April 1, of $103,523 covering medical, hospital and nursing care for 1,204 cases or an average for everything of $80 per case. This has been done without much increase in administrative costs of the division, though the estimated administrative cost would be $32,000, on the basis of 4 per cent of the amount it is expected we will handle—$800,000. If you will, contrast that amount with the appropriation given by the Legislature to the Division for its entire program which is $17,000, you will see what Dr. Wilson has been trying to do.

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There being no further resolutions ready to submit to the Committee on Resolutions, Speaker Will called for the Necrology report which was given as follows, by Dr. F. J. Hirschboeck, of Duluth.

NECROLOGIST'S REPORT

JOHN BUTLER, Minneapolis. Born 1876. University of Minnesota, 1903. Died September 17, 1943. Aged sixty-seven.

JAMES P. CALDWELL, Saint Paul. Born 1884. University of Minnesota, 1909. Died January 20, 1944. Aged sixty.

LEWIS M. DANIEL, Minneapolis. Born 1894. University of Minnesota, 1923. Died March, 1944. Aged fifty.

PHILIP A. DELAVAN, Saint Paul. Born 1899. University of Minnesota, 1927. Died September 12, 1943. Aged forty-four.

LAWRENCE F. DUGAN, Faribault. Born 1898. Marquette University Medical School, 1924. Died July 17, 1943. Aged forty-five.

SIGFRED ENGH, Jackson. Born 1886. University of Minnesota, 1914. Died December 14, 1943. Aged fifty-seven.

CAPTAIN WILLIAM MORGAN HALLER, JR. Born 1910. University of Nebraska, 1933. Died 1944. Aged thirty-four.

MAX S. HIRSCHFIELD, Duluth. Born 1867. Hamline University, 1902. Died September 4, 1943. Aged seventy-six.

ANDREW RICHARD JOHNSON, Isanti. Born 1899. University of Minnesota, 1929. Died July 25, 1943. Aged forty-four.

HARRY T. KING, Minneapolis. Born 1895. Marquette University Medical School, 1924. Died October 10, 1943. Aged forty-eight.

AUGUST KUHLMANN, Melrose. Born 1876. University of Minnesota, 1905. Died April 4, 1943. Aged sixty-seven.

OSCAR O. LARSEN, Detroit Lakes. Born 1877. University of Minnesota, 1907. Died November 7, 1943. Aged sixty-six.

GEORGINE LUDEN, Victoria, B. C., Canada. Born 1875. University of Munich, Bavaria, 1912. Died November 20, 1943. Aged sixty-eight.

F. B. MORRISSEY, Saint Paul. Born 1891. University of Minnesota, 1919. Died June 16, 1943. Aged fifty-two.

WILLIAM GERARD PARADIS, Crookston. Born 1899. University of Minnesota, 1926. Died July 7, 1943. Aged forty-four.

J. L. ROTHROCK, Saint Paul. Born 1863. University of Pennsylvania, 1888. Died July 5, 1943. Aged eighty.

ARNOLD SCHWYZER, Saint Paul. Born 1864. University of Zurich, Switzerland, 1888. Died February 19, 1944. Aged eighty.

FRED SHEPPARD, Hutchinson. Born 1869. University of Minnesota, 1891. Died September 25, 1943. Aged seventy-four.

ALLAN B. STEWART, Owatonna. Born 1863. University of Minnesota, 1891. Died October 31, 1943. Aged eighty.

ELWYN VINCENT STRAND, Bayport. Born 1902. University of Minnesota, 1929. Died November 27, 1943. Aged forty-one.

CHARLES S. SUTTON, Saint Cloud. Born 1884. University of Minnesota, 1909. Died September 21, 1943. Aged fifty-nine.

CEPHAS SWANSON, Minneapolis. Born 1876. University of Minnesota, 1907. Died July 20, 1943. Aged sixty-seven.

ALBERT THOMPSON, Saint James. Born 1872. University of Minnesota, 1905. Died March, 1944. Aged seventy-two.

MORLE O. THORSON, South Saint Paul. Born 1905. University of Minnesota, 1930. Died July 17, 1943. Aged thirty-nine.

C. W. TINKER, Stewart. Born 1857. Jefferson Medical College, 1878. Died December 10, 1943. Aged eighty-six.

GEORGE H. WALKER, Winona. Born 1880. University of Minnesota, 1908. Died July 2, 1943. Aged sixty-three.

ARCHIBALD WALTER WARD, Minneapolis. Born 1882. University of Nebraska, 1911. Died October 20, 1943. Aged sixty-one.

EDWARD E. WEBBER, Duluth. Born 1878. Jefferson Medical College, 1902. Died January 17, 1944. Aged sixty-four.

LOUIS B. WILSON, Rochester. Born 1866. University of Minnesota, 1896. Died October 5, 1943. Aged seventy-seven.

ELIZABETH A. WOODWORTH, Minneapolis. Born 1864. Minneapolis College of Physicians and Surgeons, 1901. Died December 15, 1943. Aged seventy-nine.

E. A. ZAWORSKI, Minneapolis. Born 1885. Creighton University, 1911. Died November 25, 1943. Aged fifty-eight.

Former Member

WALTER R. SCHMIDT, Glencoe. Born 1878. University of Minnesota, 1903. Died January 20, 1944. Aged sixty-six.

The House stood for a moment in silence in memory of departed colleagues and the meeting adjourned until Monday, 12:30 p.m.

Thursday, April 13, 1944

Speaker Will called the meeting to order at 12:30 P.M. in the Kahler Hotel Cafe. Having received from Dr. Bayley of the Committee on Credentials, a report that a quorum was present, Speaker Will asked for the report of the Chairman of the Council.

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DR. BURNAP: The Council, at its second meeting, this morning, voted to recommend that Dr. W. A. Coventry of Duluth and Dr. A. W. Adson of Rochester be re-elected as delegates to the American Medical Association; that the appointment of Dr. E. W. Hansen of Minneapolis to succeed Dr. J. M. Hayes of Minneapolis as the third delegate be confirmed and that Dr. J. C. Hultkrans of Minneapolis and Dr. W. L. Burnap of Fergus Falls be reëlected alternates.

The Council also voted to follow the usual custom of sending rosters of the membership to all probate judges in the state, to insurance companies, and others.

Dr. L. N. Cruttenden, Secretary of the Minnesota State Dental Society, appeared to ask support of the Association on H. R. 4216, a bill designed to give better recognition to dentists in the Navy Medical Corps and to provide more effective dental care to Navy personnel. A resolution in support of the bill was adopted, subject to such changes in phraseology as Mr. Brist or members of the Council may think best, and with the provision that this action should be routed as may be deemed best for the good of the Association. Certain technical aspects of the bill as it now reads are to be studied by Mr. Brist, also, before action is taken. If it seems advisable, the bill in its altered form, may be sent to our new Council on Medical Service and Public Relations for further action.

Dr. Hammes presented the report of a committee of three, appointed to consider the request of inductees for medical data secured at induction medical examinations. The whole matter was tabled pending conference with Col. Radl, medical director of the Selective Service System in Minnesota.

The Council approved a resolution brought in by Dr. Sweetser on the EMIC program which is to be submitted to you for action today.

It was also moved, seconded, and carried that the Council recommend coöperation with Dr. Chesley in securing information concerning the pay of local health officers. It should be emphasized here, again, that nothing effective can be done to secure fairer renumeration for local health officers unless exact information is available as to current pay. The amount of information he has secured on questionnaires is too small to be representative. Delegates are urged to see that this information is in Dr. Chesley's hands so that it can be turned over to the Legislature. The Council also voted to coöperate with Dr. Chesley and the State Board of Health in spreading information on control of contagious diseases. Measures for prevention of diphtheria deaths are particularly needed.

Action on Dr. Chesley's request for assistance in defeating H. R. 4371 for transfer of industrial health activities to the Department of Labor was deferred pending study by Mr. Brist.

* * *

Speaker Will then called for the report of the Resolutions Committee, of which Dr. R. W. Morse of Minneapolis is chairman.

The following resolutions were unanimously approved by the delegates:

I

The thanks and appreciation of the House of Delegates is hereby extended:

To the officers and members of the Olmsted-Houston-Fillmore-Dodge County Medical Society for their services and coöperation which have made possible this fine Rochester meeting.

To the Kahler Corporation and all of the hotels in Rochester for courtesies extended to our guests.

To the Radio Station KROC for making possible the fine schedule of broadcasts arranged in connection with the meeting.

To the Rochester *Post Bulletin* and all of the newspapers and wire services of the state for their generous and accurate coverage of scientific developments and news of this meeting.

II

WHEREAS the medical profession of Minnesota notes with great satisfaction that the Council on Medical Service and Public Relations of the American Medical Association has established an information office in Washington, D. C., and

WHEREAS, this forward step is in line with the expressed desires of the vast majority of the medical profession, not only in Minnesota, but throughout the country, and

WHEREAS, the establishment of this office, in the opinion of the medical profession of Minnesota, holds promise of vastly improved public relations for medicine and for re-establishment of the prestige and good opinion to which the profession is entitled by accomplishment and public service, now be it, therefore,

RESOLVED, that the House of Delegates of the Minnesota State Medical Association, in annual session, April 12, at Rochester, warmly commends the action of the Council on Medical Service and Public Relations and reaffirms its confidence in this representative body. And be it further

RESOLVED, that this House of Delegates commends the Board of Trustees of the American Medical Association for its moral and financial support of the Council which has implemented the Council's action. And be it further

RESOLVED, that this House of Delegates instructs its secretary to spread this resolution on the minutes of this meeting and to forward copies to both the Council on Medical Service and Public Relations and the Board of Trustees.

III

BE IT KNOWN, by virtue of the authority vested in the Council by its House of Delegates that the Distinguished Service Medal of the Association is hereby awarded to Willard L. Burnap in recognition of his many years in the honorable practice of medicine in Minnesota and of his faithful service to the Association as president, and member and chairman of its Council and as leader in organized medicine.

IV

BE IT KNOWN by virtue of the authority vested in the Council by its House of Delegates that the Distinguished Service Medal of the Association is hereby awarded to William F. Braasch in recognition of his achievements in scientific medicine and of his many years of faithful service to organized medicine and this Association as president, member of the Council and committee chairman and as delegate and trustee to the American Medical Association.

Speaker Will then called upon recipients of the Distinguished Service Awards, Dr. Burnap and Dr. Braasch (the latter was not present).

* * *

DR. BURNAP: I heard Wednesday you had something like this up your sleeves. I really and sincerely feel ashamed to have you do this for me because there are dozens of men who have done more than I. I don't know just what the idea is or why you pick on me. But since you have, I guess I'll take it.

(Laughter and applause)

DR. MORSE: The following resolution comes from a joint committee representing several groups and from the Council:

WHEREAS the program now in operation for maternal and infant care for wives and infants of enlisted men in the four lower grades is unsatisfactory to the medical profession, and

WHEREAS the emergency provisions for the carrying on of the program as now in operation expire June 30, 1944, be it therefore

RESOLVED, that the Council and House of Delegates of the Minnesota State Medical Association recommend that the medical profession coöperate with the present program until its expiration date, June 30, 1944, but also urge Congress to abandon the program as now constituted on that date and be it further,

RESOLVED, that under any new program after June 30, 1944, the benefits be designated supplemental aid in the form of an allotment for medical hospital, maternity and infant care, similar to the allotments already provided for the maintenance of dependents, leaving the actual arrangements with respect to fees to be fixed by mutual agreement between the enlisted man's wife and the physician of her choice, and be it further

RESOLVED, that the American Medical Association be urged to present to the appropriate committees of Congress a concrete plan embodying this principle, to the end that the present and ultimate best interests of the wives and infants of men in service be served during the present emergency.

Mr. Speaker, I move the adoption of this resolution.

* * *

The motion being duly seconded, Speaker Will called for discussion.

* * *

DR. SWEETSER: This resolution is the result of conferences by representatives of many different committees of the Association. It came to a head when proposals were made to provide for care of non-obstetrical conditions. We have been working for a year under the plan approved by the last House of Delegates and modified as to fee schedule by the Children's Bureau. I was asked, when the request came to work out new arrangements for care of inter-current obstetrical conditions, to develop the reaction of the doctors in general and also of the service organizations, to the plan.

We have tried to leave out controversial elements in the resolution which resulted and to get at the meat of the problem. We have many members who are in the Armed Forces fighting now for our American way of life. And it is my personal idea about the matter that right here, under our noses, arrangements are being made and plans drawn up by which we are losing our American way of life, little by little, piece by piece. We are gradually losing the practice of medicine as we have always understood it.

Whenever we open a discussion of the program we immediately run into complaints: "Why do we have to answer all these questions?" "Why the red tape and delay?"

In respect to the delays, I think we should all understand that the Health Department has made a valiant attempt to carry out provisions of the Children's Bureau and with very little extra administrative assistance. I don't want the health department to feel that we are criticizing them.

The pleas made in favor of the program as it is now constituted are: that the care provided is good; that the pay is certain and that the wives are relieved of the responsibility of handling the money and seeing that it reaches the people who give the service.

On the other hand, it seems to me that, in America, when women reach the age to be married and have children they should be considered as adults and responsible enough to take care of their own affairs. If the government has not paid enlisted men enough salary to take care of medical service for their families, then they should arrange for extra benefits in the same way that they arrange allowances for housing, shelter and food.

By adopting this resolution, we shall indicate our willingness to work with the war effort; but we shall be suggesting, also, a way to do it while preserving the relationship between the patient and the doctor and giving us some chance to avoid the long-range development of government medicine.

If the program continues as at present, even if it is labeled an emergency program and even recognizing the good will and good intentions of the Children's Bureau, nevertheless we have no guarantee that later it will not be extended.

The Associate Director of the Children's Bureau has made a statement in print, that it is not too early to plan for public maternity and infant care after the war and that it will take at least ten years to work out the plans.

The program has been changed considerably since last December, with apparent improvement with each change. That may be good; but there is this aspect of it to consider: every time that this service pro-

gram is made more practical and feasible, it is just that much more certain to go on after the war, just that much more certain to be extended.

I understand from Dr. Adson that American Legion representatives who attended a Children's Bureau meeting in Washington said that the Legion would be in favor of the allotment plan for distributing benefits, in spite of the action taken by the Legion at their national convention last year.

If you extend the program from obstetrical to non-obstetrical conditions for pregnant women, you are going to extend it to non-obstetrical care for non-pregnant wives of servicemen. It can't be otherwise if you are going to be logical. If you are going to take care of the infant during the first years of life, what is to prevent you from taking care of all the children of servicemen? The emergency is not going to end on the first of July of this year. Some of the infants cared for under the program are going to be more than a year old soon. Why not extend it to provide for them after they are a year old? Why not extend it to the older children? If you are going to take care of the wives of servicemen, why not take care of the wives of veterans, too? Pretty soon, you could have the whole schedule for state medicine set up as a direct result of this program. You have the precedent right here, and the first step. If you are going to stop at all, now is the time to stop.

* * *

Speaker Will then called on Dr. Helen Curtis, field representative of the Children's Bureau.

* * *

DR. CURTIS: Whatever Congress does in relation to this program will of course dictate the course of the Children's Bureau in administrating it. If an outright grant is made to the wives of servicemen, on the same basis as the grant made for maintenance, there will probably be no occasion for the State Health Department or the Children's Bureau to enter the picture at all. However, I do think that if the benefit were to be given in the form of an outright grant, and the individual needs of mothers and infants were also taken into consideration, we would probably come back to the same type of program, eventually, that we have now.

DR. MOE, Duluth, chairman of the Committee on Maternal Health: The principle involved in this resolution is the thing that is important—the principle of whether payments should be made, as is done, now, through a third party, or whether the direct relationship between patient and doctor should be maintained. It is too bad that the question of fees has to enter into the matter. In any case, we can't possibly decide what the fees should be under the allotment plan. That is a problem which must be worked out. There is no basis, as yet, either, for a discussion of details of administration of an allotment plan; but I believe very firmly that every effort should be made to maintain the patient-doctor relationship and I approve of the resolution as presented by the committee.

DR. ADSON: I had the privilege of sitting in at the meeting called by the Children's Bureau which was mentioned by Dr. Sweetser. It was apparent at this meeting that most of the social agencies represented were in favor of perfecting the present program. However, Dr. Sensenich, a member of the Board of Trustees, and Dr. Bauer from the AMA office and I were there to express the opinion voiced by the House of Delegates, namely, that a direct allotment to the expectant mother was the method of choice. There were many obstetricians and pediatricians present who were members of the Advisory Committee of the Children's Bureau, and apparently they were somewhat divided on the issue. We were, however, rather surprised and pleased to hear two representatives of the American Legion emphatically state that the private practice of medicine should be preserved and that service rendered to these beneficiaries would be far better if it were preserved.

Dr. Eliot took the stand that Congress had dictated the character of the program; and it is true that Congress did vote in favor of the present program. But it appears that Congress heard only one side and that the medical profession was not represented at the hearings. Nor was the American Legion. One of the Legion men said just what Dr. Sweetser said: "If you begin to render service to expectant mothers for illnesses not connected with pregnancy, there is no reason why we cannot go back to the Legion and insist that wives of Legionnaires be given similar services." Then he pointed out the evils that would develop and what would happen to medicine under such a system. I presume that Legion sentiment is divided, too, but I do believe that the major sentiment is in favor of protection for the private practice of medicine and that they would favor applying the same principles to care of these servicemen's wives as apply to any patient in private practice.

I am not sure how much will be accomplished by this resolution, but I do think that it is extremely important to pass it. It expresses the opinion of the doctors who are actually in practice, and it might go a long way toward forestalling other moves. It is conceded that the Wagner-Murray-Dingell Bill will not pass. But even if it does not pass, certain individuals are going to attempt all sorts of subterfuges and even produce bits of legislation which could remain on the statute books after the emergency. I should say, in all fairness to Miss Lenroot and Dr. Eliot, that they did not commit themselves in the discussion of whether or not the program was to be limited to the present emergency.

I believe the resolution should not only be presented to our own congressmen but to various state organizations and to the trustees of the American Medical Association. I know that Dr. Bauer is to represent the AMA at the hearing on the next appropriation for the program. Also, Dr. Joseph Lawrence, who is in charge of the Information Office of the Council on Medical Service and Public Relations in Washington, will be there. You recall that Mr. Holloway, attorney for the Bureau of Legal Medicine, sent out a circular letter to state associations asking whether they wished to be heard. I believe it would be wise if our state organization did send a representative to Washington to that hearing.

The function of the Council on Medical Service and Public Relations, in relation to representation of the profession in such matters, is not yet completely defined. We expect it to be defined at the next meeting of the House of Delegates, however, and I think most medical men do expect us to take definite action. The Council has suggested that a panel of physicians be selected from all parts of the country to answer questions relative to issues brought before Congress, in place of depending on one individual. We hope, eventually, to clarify this matter so that workable machinery for action can be created. One reason why you may have difficulty in altering the present EMIC plan is because this machinery is not yet in working order. On the other hand, if enough interest can be created at this hearing, something may be done toward working out a coöperative plan.

DR. J. R. AURELIUS, Saint Paul: As representative of the Radiological Committee and, in the absence of Dr. Hauser of the Fracture Committee who couldn't be here, I can say that the two groups of x-ray and fracture men are unanimously in accord with the resolution.

DR. RICHDORF, Minneapolis: We would certainly like to see this machinery Dr. Adson spoke of functioning

soon. The hearing on the EMIC program is the 27th of April and there is extreme urgency about whateve we may do.

* * *

Speaker Will called on presidents of the Wisconsin and Iowa State Medical Associations.

* * *

DR. KURTEN: I believe you represent in your resolution the attitude of the Wisconsin society and we will use all of the influence we can muster to further the thought and principle back of it now and later on.

DR. WOODWARD: Our Iowa committee studying this program determined, at one time, to coöperate only until January, 1944, but later decided to extend coöperation until June 30. We are meeting in Iowa next week and I do not know what action our House of Delegates is prepared to take. But the feeling in Iowa is that this matter of fixed fees is wrong; that the fact that you must take all or none, regardless of the amount of work to be done or the preferences of the wife, is wrong. As it works out in practice, it does not give the serviceman's wife her choice of physician because physicians may refuse to participate in the program if they want to and there has been quite a little dissatisfaction among the women because they thought they were entitled to have any physician they might choose, regardless of whether the fees paid are his fees or not. I think the resolution covers the situation better than anything we have arrived at in Iowa.

DR. MOREHEAD, Owatonna: If there is no bureau in Washington to take care of this fee, I think it would be a good thing to recommend that the allotment money be handled through Dr. Wilson's office in the State Board of Health. To leave it open might mean that, the first thing we knew, there would be still another bureau operating in Washington. Also, I would recommend sending the resolution to the Central Association of Obstetricians which also has a committee which might help in this machinery mentioned by Dr. Adson.

DR. SWEETSER: In answer to Dr. Morehead's suggestion about handling allotment money, I would like to draw his attention to the paragraph of the resolution that mentions the Bureau of Allotments which now has facilities for disbursement of such funds as Congress may allocate to servicemen's families. If these women are old enough to get and handle allotments for living expenses, such as food and shelter, from the Bureau of Allotments, they should be mature enough to get an allotment through the same channel to pay their doctors.

We are taking a chance, maybe, that some of them will spend the money for something else; but even if there are no feasible safeguards to protect expenditure of such funds, we are no worse off than we were before.

* * *

It was moved, seconded and carried that the resolution be adopted.

* * *

DR. SAVAGE, Saint Paul: It seems to me the time is short and it would be appropriate for this House of Delegates to ask Dr. Adson to represent the Association at the hearing in Washington.

* * *

Dr. Adson said it would be impossible for him to do so and it was unanimously decided that a representative should be sent and that selection of the representatives should be left to the Council.

In response to the Speaker's request for new business, Dr. Burnap requested that the House of Delegates take action to coöperate with Dr. Chesley in securing information about the pay of local health officers, as the first step toward legislative action to change the schedule.

It was moved, seconded and carried that members of the House of Delegates should assist Dr. Chesley in securing this information, and also that the House of Delegates should back Dr. Chesley in all measures undertaken by the Minnesota Department of Health to control preventable disease in the state.

* * *

DR. CHESLEY: You will understand that the State Board of Health has nothing to do with the pay of health officers, which is a matter determined entirely between the doctor and the local Board of Health. But we can do nothing at all in the way of fostering a uniform improvement in fees unless we can get reports from at least 50 to 75 per cent of the medical men of the state. If we get this information, we can put it in the hands of Dr. Sogge who represents the State Sanitary Conference in the Legislature. Then, if it seems that something can be done, he will be in a position to do it.

* * *

At the request of Dr. Burnap, Dr. Chesley also repeated for the delegates, remarks about health officers made before the Council, earlier.

* * *

DR. CHESLEY: As secretary for eighteen years for the Conference of State and Provincial Health Officers, I am in a position to know something about health officers. At the present time there are twelve, I believe, who have been in state health work or as responsible heads of divisions in State Health Departments for as long as eighteen or twenty years and therefore know something about the background of the movement for what might be called the "broader aspects of the more abundant life." The others are most of them younger men, especially those who change with each governor, who know nothing about what happened before. They think the oldtimers are going into the discard and their reaction is: "What do we care what they think? We are modern and up to date and we are going ahead with proper social up lift programs."

We older men know how these things started, how they got by and where they are headed, and some of us who have old-fashioned ideas had better watch our step.

Furthermore, we must remember that money talks. The Division of Child Hygiene, for instance, receives the magnificent sum of $17,000 for its work from the state. But Dr. Wilson, the director, will probably be handling $800,000 of federal money for the EMIC program, on the basis of present appropriations. Who really owns the organization, so far as appropriations go? If we go on that way with federal allocations of money the State Legislature is going to cut its appropriations. Will we have any independence after a while? If the doctors approve of a little more money here, and an extension there, where are we going? I don't know; but some of the oldtimers are a bit concerned.

DR. SWEETSER: Isn't it true, Dr. Chesley, that the State and Provincial Health Officers insisted upon appointing their own advisory committee to the U. S. Public Health Service and the Children's Bureau and that you did not accept the advisory committee appointed by the Children's Bureau?

DR. CHESLEY: Yes and no. The situations are not identical. A few years ago, it became apparent to the organization of state and provincial health officers that they would have more effect in presenting legislation to Congress if an organization of state and territorial health officers (exclusive of Canada) was created. Accordingly, such an organization was created and committees comparable with those which served for the other organization in the Surgeon General's Conference and the Children's Bureau were appointed. The Surgeon

General accepted the committees but the Children's Bureau at first refused to do so, preferring the earlier committees, appointed in conjunction with the organization of state and provincial health authorities. Later they agreed to deal with the new committees.

DR. SWEETSER: The point seems to be that the Children's Bureau drew up this program with the advice of a committee appointed by the Bureau and so did not get the reaction of practicing physicians throughout the country or of service organizations. I believe we should look with considerable alarm at a program which is started with the advice of a committee appointed by the administration, instead of by the people who are going to be asked to carry it out.

DR. CHESLEY: The Children's Bureau wants committees for information on technical matters, of course. Our health officers' committees function entirely in relation to administrative affairs and the relation of the federal government to functions of state health departments. Perhaps Dr. Curtis can give you more information about the Children's Bureau committees.

DR. CURTIS: I would like to say that the Academy of Pediatrics made the suggestion, in connection with this program, that the Children's Bureau should have an advisory committee made up of official representatives of all the various medical groups which might be interested in the program. The recommendation was accepted and a meeting of all of these representatives was held last December, as Dr. Adson said. But for its own advisory committees, I believe the Children's Bureau would feel that it certainly had the right to appoint whatever committees it might need to carry out the program. I believe, however, that it will continue to co-operate with representatives of these various professional groups, also. There is no inconsistency between the two policies. But just as you brought out the point that the State and Territorial Health Officers should have the right to appoint their own committees so, I believe the Children's Bureau feels and has felt from the beginning that it ought to have the right to appoint its committees to assist in the work of the bureau.

ELECTION OF OFFICERS

Speaker Will then called for election of officers and the following were unanimously elected.

President-elect: E. L. Tuohy, Duluth

First Vice President: S. A. Slater, Worthington

Second Vice President: J. A. Bargen, Rochester

Secretary: B. B. Souster, Saint Paul (re-elected)

Treasurer: W. A. Condit, Minneapolis (re-elected)

Speaker of the House of Delegates: W. W. Will, Bertha (re-elected)

Vice Speaker of the House of Delegates: E. A. Meyerding, Saint Paul, (re-elected)

Councilor, First District: L. A. Buie, Rochester (re-elected)

Councilor, Second District: L. L. Sogge, Windom (re-elected)

Councilor, Ninth District: F. J. Elias, Duluth (re-elected)

Delegates to the American Medical Association: W. A. Coventry, Duluth (re-elected): A. W. Adson, Rochester (re-elected) and E. W. Hansen, Minneapolis (appointment to fill the place of J. M. Hayes confirmed).

Alternates: for Dr. Coventry, J. C. Hultkrans, Minneapolis (re-elected); for Dr. Adson, W. L. Burnap, Fergus Falls (re-elected).

It was then moved, seconded and carried that the invitation presented by Dr. Drake to hold the 1945 meeting in Saint Paul be accepted.

SPEAKER WILL: If there is no further business to come before the House of Delegates, I would like to suggest to the delegates that they report on the proceedings promptly to the component societies and that the first meeting held by the societies after this annual meeting be devoted to these reports.

The meeting adjourned at 3 p.m.

MORE DDT FINDINGS

DDT, Science's newest and deadliest blitz-weapon against insects, though known to be poisonous to man and warm-blooded animals also, is apparently safe to use when dusted dry on the skin and when breathed in air into which it has been sprayed as an insecticide. Results of two series of experiments supporting this conclusion were presented before an audience of entomologists in Washington by Dr. Herbert O. Calvery of the U. S. Food and Drug Administration and Dr. Paul A. Neal of the National Institute of Health.

Dr. Calvery's nutshell summation was: "In solid form DDT applied topically to the skin is nonirritating, nonsensitizing and not appreciably absorbed. In solution, either in oil or in organic solvent, it does readily penetrate the skin, is very mildly irritating and a very mild sensitizing agent."

Dr. Neal corroborated his colleague's verdict so far as safety in use as a dry delousing powder is concerned, and added that spray or aerosol solutions containing 1 per cent of DDT were breathed for long periods by rabbits without any tangible ill effects

Furthermore, he said, "In a clinical and laboratory study of three men who had had several months' continuous occupational exposure to DDT in its various forms as an insecticide, an evaluation of the results failed to indicate any definite toxic effects."

Both Dr. Calvery and Dr. Neal reported that in their independently conducted investigations they found considerable differences among laboratory animals in susceptibility to DDT poisoning. Mice were more susceptible than rats, guinea pigs and rabbits, with monkeys and dogs most resistant.

When relatively large doses (well above ordinary insecticide levels) were absorbed through the skin or swallowed, symptoms of poisoning began to be evident. They were principally tremors, a "jumpiness" resembling that of strychnine poisoning, and convulsions ending in death. Autopsies disclosed fatty degeneration of liver and kidneys, or changes in nerve structure.

Dr. Neal concluded that although DDT need not be regarded as dangerous in ordinary insecticidal dusts or sprays, heavy contaminations of foods should be avoided.—*Science News Letter,* November 11, 1944.

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In Memoriam

JAMES EDDY ARNOLD

Dr. James E. Arnold, chief of the emergency receiving ward of the General Hospital, Minneapolis, since July 1, 1944, died of a coronary attack July 17, 1944, at the age of fifty-four.

Doctor Arnold was born at Miles City, Montana, June 26, 1890. He attended the University of Chicago and Valparaiso University, Indiana, and obtained his M.D. from Rush Medical College in 1917.

He practiced at Eveleth, Minnesota, from 1919 to 1921, at Vernon Center and Mapleton, from 1922 to 1928, at Miles City, Montana, from 1928 to 1937, and at Mountain Iron, Minnesota, from 1938 to 1943, when he moved to Minneapolis.

* * *

GEORGE WILLIS BASS

Dr. George W. Bass, Minneapolis, died September 14, 1944, at the age of eighty-six.

Doctor Bass was born at Underhill, Vermont, October 13, 1858. He attended the Underhill Academy, Barre Academy, and Essex Classical Institute. In 1881, he received his medical degree from the Medical Department of the University of Vermont at Burlington and took additional work at the New York Postgraduate School. He practiced at McIndoes Falls, Vermont, from 1881 to 1885. He then moved to Minneapolis, where he opened an office at Washington and Fourth Avenues. Later his office was located in the old Eastman Block at Fourth and Nicollet, but he maintained an office for forty years at 929 West Broadway.

Doctor Bass married Nellie Castle in Burlington in 1887. Following her death in 1941, he married Mrs. Fannie Wingate Hill.

He was secretary of the Hennepin County Medical Society from 1889 to 1892, and vice president from 1892 to 1893.

In 1942, Doctor Bass was elected to the "50 club" of the Minnesota State Medical Association, having practiced for fifty years.

He is survived by a son, Frank Castle Bass, a faculty member of the Northwestern Bible School of Minneapolis.

* * *

GEORGE F. EUBANKS

Lt. Col. George F. Eubanks, former fellow in surgery of the Mayo foundation, died September 25, 1944, at a station hospital somewhere in southern England.

Lt. Col. Eubanks was born June 2, 1900, in Atlanta, Georgia. He received the degree of M.D. in 1925 from Emory University and was an intern at Wesley Hospital, Atlanta, from July, 1925, to July, 1926. He entered the Mayo Foundation in 1926 and left in 1929, at which time he became chief resident physician

(Continued on page 952)

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at Knoxville General Hospital, Knoxville, Tennessee. Later he went to Atlanta, Georgia, where he practiced surgery and proctology. He was attending proctologist at the Grady Municipal Hospital and the Georgia Baptist Hospital and associate surgeon at the Albert Steiner Memorial Cancer Clinic.

He was a fellow of the American Medical Association and a member of the American Proctologic Society, the Southeastern Surgical Congress and the Southern Medical Association.

* * *

WILLIAM R. KING

Dr. William R. King, a former resident of Eveleth, Minnesota, died at his home in Minneapolis, August 10, 1944.

Doctor King was born at Chatfield, Minnesota, December 22, 1889, and grew up in Chippewa Falls, Wisconsin. He graduated from Harvard Medical School in 1917.

He is survived by his wife; two sons, Lieutenant Robert King in the bomber service and Richard; two daughters, Mrs. Harold G. Nelson and Mrs. Forrest Hales, both of Minneapolis; one brother, Dr. George L. King, of Saint Paul, and a sister, Mrs. Earl A. Hadley of Proctor, Minnesota.

* * *

JAMES MOORHEAD MURDOCH

Word has been received of the death on October 8, 1944, of Dr. James M. Murdoch at Pittsburgh, where he had lived since his retirement as Superintendent of the Minnesota School for the Feeble-Minded at Faribault in 1937. He was seventy-five years old.

Doctor Murdoch graduated from the University of Pittsburgh School of Medicine in 1892, and became superintendent of the Dixmont Pennsylvania Hospital for the Insane. For thirty years he was superintendent of the Pennsylvania State Institution for the Feeble-Minded before coming to Faribault.

He was a former member of the Rice County Medical Society and was a former president of the American Association on Mental Deficiency. He had a wide acquaintance in Minnesota.

* * *

RALPH G. MILLS

Ralph G. Mills, former associate in pathologic anatomy and professor of pathology, The Mayo Foundation, died October 17, 1944, at Decatur, Illinois.

Dr. Mills was born March 4, 1881, in Lincoln, Illinois. He received the degree of A.B. in 1903 from the University of Illinois, M.D. cum laude in 1907 from Northwestern University and was an intern at St. Luke's Hospital, Chicago, from 1907 to 1908. He was engaged in building Kennedy Hospital, Kangkai, Korea, of which he was head, from 1908 to 1912; was a graduate student at the University of Chicago during 1912 and 1913; was professor of pathology and bacteriology and in charge of the clinical laboratories and research department, Severance Union Medical College, Seoul, Korea, from 1913 to 1918; was head of the de-

partment of pathology in Peking Union Medical College from 1918 to 1925; was instructor in pathology at Johns Hopkins University from 1919 to 1920, and was professor of pathology at the University of Colorado School of Medicine from 1925 to 1926. He entered the Mayo Clinic as associate in pathologic anatomy and professor of pathology, The Mayo Foundation, on June 1, 1925, and left in October, 1929. At the time of his death he was practicing in Decatur, Illinois.

He was a fellow of the American Medical Association, a member of the American Association of Pathologists and Bacteriologists and the Wisconsin Academy of Science.

* * *

ALBERT THOMPSON

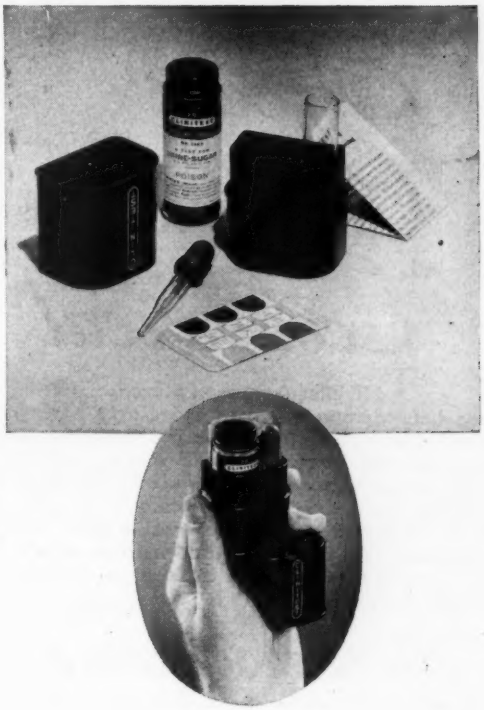
Dr. Albert Thompson of Saint James, Minnesota, died March 10, 1944, at the age of seventy-one.

Doctor Thompson was born April 22, 1872, at Sacred Heart, Minnesota. He obtained his B.A. degree from Gustavus Adolphus College, Saint Peter, in 1899, and his M.D. degree from the University of Minnesota in 1905.

He was president of the school board in Saint James for twenty-one years, acted as coroner at one time, and was local surgeon for the Milwaukee Railroad.

Most of the tuberculous patients, who seek medical aid today have had many reinoculations with many resultant foci of varying degrees of severity. The best that clinicians can do in a short course of treatment in such a chronic disease is to secure a truce between the patient and his bacilli, a truce which may be broken on either side: by the bacilli if their environment becomes congenial for their growth and multiplication; by the patient if he can increase his resistance sufficiently, maintain it at a high level, and thus prevent the bacilli from further activity.

Here is where we are making one of our most abject failures in treating tuberculosis. Both physicians and patients are prone to lose interest; and treatment is often interrupted before healing has been attained. By relaxing measures necessary to complete healing, the patient's defensive powers are allowed to lower, the tissues lose their resistance and new activity starts. Thus are caused the many relapses which plague us and make us almost lose confidence in therapeutic measures. A little longer treatment and a great deal longer extension of the careful life after treatment has been finished, and a full rehabilitation of the patient before he is discharged from observation, and many of the reactivations which we speak of as "breakdowns" would be avoided and many sources of infection would be permanently instead of temporarily eliminated.—F. M. POTTENGER, M.D., *American Review of Tuberculosis*, August, 1944.



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WOMAN'S AUXILIARY

MRS. ANTHONY J. BIANCO, *President*
Duluth, Minnesota
MRS. ROYAL V. SHERMAN, *Editor*
Red Wing, Minnesota

PRESIDENT'S GREETING

Dear Auxiliary Members:

As I reflect on the year that lies ahead, I wish to take this opportunity to extend a welcome and greeting to all Auxiliary members. I am grateful for the opportunity the year will afford me to know each of you better, and to benefit by your friendship and advice.

The war is a challenge to all of us—and we must not use it as an excuse for letting things go. We must stand ready at all times to help safeguard the Medical Profession. We must not slacken in our work. We must organize and stay organized—so that ground gained in the past will not be lost. We as Doctors' wives, should accept the tasks that lie ahead gratefully, and we should see to it that every member is a well-informed active member of her auxiliary.

Let us not forget the primary purpose of our coming into existence: To promote FRIENDSHIP among Physicians' families. Let us strive this year to make "Friendliness" one of our prime objectives. Let us all try to make our Auxiliary a real friendly organization. I should like to close with a definition of an ideal Auxiliary:

WHAT IS AN AUXILIARY?

A place where kindly thought is cherished,
Where high ideals are fed and nourished—
Where CHARITY and all its beauty
Are held to be a sacred duty,
Where PEACE and HARMONY abound
And members meet on common ground.

Most sincerely,
AMY WALSH BIANCO

STATE BOARD

The Woman's Auxiliary of the Minnesota State Medical Association held its fall board meeting October 13, in Saint Paul, at the Saint Paul Hotel.

Mrs. Anthony Bianco, State President, gave a splendid report on the National Convention. Mrs. Bianco brought news from the National Convention and commended Minnesota on being one of two states that succeeded in providing their quota for recruiting nurses. This is one of the major projects of the Minnesota State Auxiliary and included recruitment of Cadet Nurses and nurses for the armed forces. Mrs. Bianco emphasized the necessity of presenting to the laity the true facts concerning the Wagner-Murray-Dingell Bill.

Chairmen of the committees outlined their plans for the coming year and reports were given by the County presidents.

The nominating committee for 1945 was elected with Mrs. Lloyd Dack of Saint Paul serving as chairman.

At the luncheon which followed the meeting, John Doyle, Probation Officer for Juvenile Court of Saint Paul, spoke on "Juvenile Delinquency."

(Continued on Page 956)

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Primarily, the unique functional design of the Tampax vaginal tampon accounts for its numerous advantages—anatomic, physiologic and psychologic.

As one gynecologist[1] stated, at the conclusion of a study involving more than 2,300 cases of all types (many of whom employed Tampax over extended periods): "The patient does not even know that a tampon is present in the vagina if it is inserted sufficiently deep." He continued, "Many say they can forget that they are menstruating and so are without the disturbing annoyance they had every time they menstruated."

A general practitioner[2], after studying 21 patients, remarked: "All patients were favorably impressed after using the tampons. Some said that they eliminated the chafing and itching caused by the usual external pads. Some said that they eliminated a 'wet feeling' or 'unpleasant odor'. Others preferred them because they could indulge in sports with greater freedom."

And another specialist[3], after observing 110 women (both single and married) who employed vaginal tampons throughout each period for from 1 to 2 years, reported that "because of the greater comfort experienced, 103 subjects preferred to continue to use the tampons through part or all of the menstrual period rather than to return to the use of the perineal pad alone."

Such opinions reflect the reactions of thousands of women in all walks of life who have experienced the advantages inherent in the Tampax method of menstrual hygiene.

(1) West. J. Surg., Obst. & Gyn., 51:150, 1943.
(2) Clin. Med. & Surg., 46:327, 1939.
(3) Am. J. Obst. & Gyn., 46:259, 1943.

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MOWER COUNTY

The Woman's Auxiliary to the Mower County Medical Society held its first meeting of the year Monday, September 26, 1944, at the home of Mrs. C. L. Sheedy, State Finance Chairman. A 1:30 dessert luncheon was served, followed by a social afternoon.

In Memoriam

Mrs. O. H. Hegge died September 30, 1944, at her home in Austin, Minnesota. Mrs. Hegge was an early member of the Woman's Auxiliary of Mower County, and also of the State Auxiliary. She continued to take an active interest in the activities of the various programs of the society up to the time of her death.

Mrs. Hegge was the daughter of Mr. and Mrs. Seymour Johnson, pioneer family of Austin. She is survived by her husband, Dr. O. H. Hegge, a son, Dr. Rolv Hegge of Austin, and Mrs. Theodore Heimarck, daughter, of Red Wing.

WASHINGTON COUNTY

The Washington County Auxiliary meeting was held at the home of Dr. and Mrs. J. H. Haines in Stillwater in September. Mrs. R. J. Josewski, president, presided at the meeting, and plans were made for the coming year. Following the meeting a social time was enjoyed, with members honoring Dr. and Mrs. Haines on their 45th wedding anniversary.

OFFICERS—1944-1945

President: Mrs. Anthony J. Bianco, Duluth
President-Elect: Mrs. E. V. Goltz, Saint Paul
First Vice President: Mrs. L. P. Howell, Rochester
Second Vice President: Mrs. J. A. Thabes, Sr., Brainerd
Third Vice President: Mrs. Harold F. Wahlquist, Minneapolis
Fourth Vice President: Mrs. Edward L. Tuohy, Duluth
Recording Secretary: Mrs. E. N. Miller, Anoka
Corresponding Secretary: Mrs. Harry Klein, Duluth
Treasurer: Mrs. Harold Flannagan, Saint Paul
Auditor: Mrs. J. A. Cosgriff, Olivia
Historian: Mrs. O. B. Fesenmaier, New Ulm
Parliamentarian: Mrs. E. C. Eshelby, Saint Paul

Chairmen of Standing Committees

Organization: Mrs. E. V. Goltz, Saint Paul
Program: Mrs. Mack E. Ryan, Saint Paul
Finance: Mrs. C. L. Sheedy, Austin
Legislation: Mrs. Hobart C. Johnson, Mankato
Public Relations: Mrs. H. N. Satterlee, Lewiston
Health Education: Mrs. R. M. Mayne, Duluth; Co-Chairman: Mrs. J. J. Ratcliffe, Aitkin
Hygeia: Mrs. S. C. Oeljen, Waseca
Editor—MINNESOTA MEDICINE: Mrs. Royal V. Sherman, Red Wing
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Revisions: Mrs. Archie Nissen, Saint Peter
Bulletin: Mrs. Malcolm G. Gillespie, Duluth
War Service: Mrs. John Dordal, Sacred Heart
Medical and Surgical Relief: Mrs. Claude Kennedy, Minneapolis
Emergency Nursing: Mrs. Harlow Hanson, Minneapolis
Social Committee Chairmen: Mrs. Charles W. Waas, Saint Paul; Mrs. James C. Ferguson, Saint Paul; Mrs. N. H. Rucker, Robbinsdale; Mrs. Thomas Kinsella, Minneapolis; Mrs. Phillip W. Brown, Rochester; Mrs. Cyril M. Smith, Duluth.

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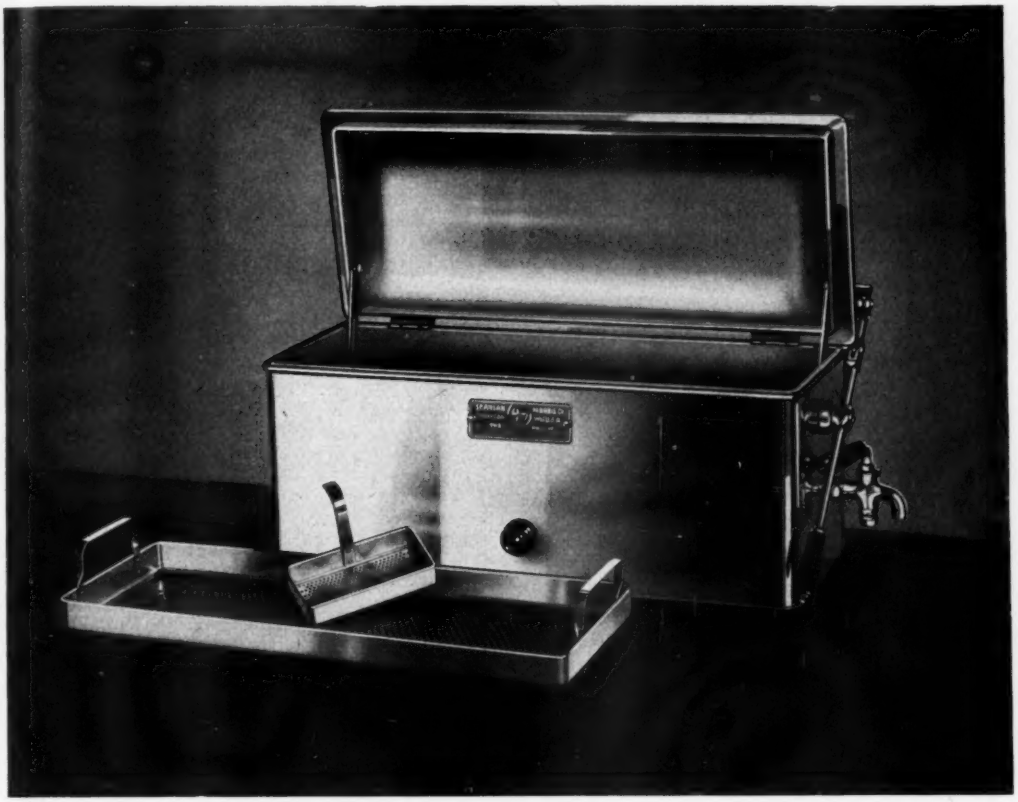

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✦ Reports and Announcements ✦

MEDICAL BROADCAST FOR NOVEMBER

The following radio schedule of talks on medical and dental subjects by William A. O'Brien, M.D., Director of Postgraduate Medical Education, University of Minnesota, is sponsored by the Minnesota State Medical Association, the Minnesota State Dental Association, Minnesota Hospital Association and University of Minnesota School of the Air:

Nov. 1—11:00 a.m.	(WLB)	Exercise and Play
Nov. 4— 9:15 a.m.	(WCCO)	Cause of Mental Illness
Nov. 4—11:30 a.m.	(WLB-KROC)	Medicine in the News
Nov. 8—11:00 a.m.	(WLB)	Care of Skin and Hair
Nov. 11— 9:15 a.m.	(WCCO)	Measurement of Personality
Nov. 11—11:30 a.m.	(WLB-KROC)	Medicine in the News
Nov. 15—11:00 a.m.	(WLB)	Common Skin Disorders
Nov. 18— 9:15 a.m.	(WCCO)	Psychosomatic Medicine
Nov. 18—11:30 a.m.	(WLB-KROC)	Medicine in the News
Nov. 22—11:00 a.m.	(WLB)	Clothing and Health
Nov. 25— 9:15 a.m.	(WCCO)	Fluorine and Dental Caries
Nov. 25—11:30 a.m.	(WLB-KROC)	Medicine in the News
Nov. 27— 4:15 p.m.	(WCCO)	Your Hospital in Wartime—Subject to be announced.
Nov. 29—11:00 a.m.	(WLB)	Good Air vs. Bad Air

FORUM ON ALLERGY

The seventh annual Forum on Allergy will be held in the Hotel William Penn, Pittsburgh, Pennsylvania, on Saturday and Sunday, January 20-21, 1945.

This international postgraduate society was founded in 1938, at Cincinnati, Ohio, to provide intensive postgraduate instruction in allergy for physicians in various fields. Reputable physicians are welcome to enroll in two of the twelve study groups.

This year the Marcelle prize has been established through the generosity of Marcelle Cosmetics, Inc., which will be given to the author of the best paper on allergy appearing in American medical literature during the year.

For further information, write Jonathan Forman, M.D., Director, 956 Bryden Road, Columbus 5, Ohio.

WABASHA COUNTY

The seventy-sixth annual meeting of the Wabasha County Medical Society was held at Wabasha, Thursday afternoon and evening, October 5, 1944.

At the business session, the following officers were elected to serve for one year: President, C. G. Ochsner, M.D., Wabasha; Vice President, E. W. Ellis, M.D., Elgin; Secretary-Treasurer, W. F. Wilson, M.D., Lake City; Delegate to State Association, E. C. Bayley, M.D., Lake City; Alternate, B. J. Bouquet, M.D., Wabasha; Censor for three years, R. A. Glabe, M.D., Plainview; Censors continuing in office, D. G. Mahle, M.D., Plainview and W. J. Cochrane, M.D., Lake City.

Dinner was served at the Hotel Anderson through the courtesy of the Wabasha members, following which the scientific program was presented:

President's Address—E. C. Bayley, M.D., Lake City.

(1) "Report of a Case of Loeffler's Syndrome."

(2 Delegate's report.

"Intra-abdominal Pregnancy" (Case Report)—C. G. Ochsner, M.D., Wabasha.

"Medicine in Minnesota Fifty-Six Years Ago." Review of the *Northwestern Lancet* of March 15, 1888—W. F. Wilson, M.D., Lake City.

"Chronic Recurring Sciatica and Its Surgical Management." (Illustrated with lantern slides and a motion film)—A. W. Adson, M.D., Mayo Clinic, Rochester.

At the conclusion of his scientific address, upon request, Doctor Adson reported on the activities of the Council on Medical Service and Public Relations of the American Medical Association.

There were twenty-six in attendance—doctors and accompanying ladies. The ladies were entertained at the home of Dr. and Mrs. G. C. Ochsner in the evening.

WASHINGTON COUNTY

At the regular monthly meeting of the Washington County Medical Society on October 10, E. M. Hammes, M.D., of Saint Paul, counsellor for the fifth district, met with the Society. He addressed the meeting on the subject of a postwar medical service and outlined what the state survey, now nearly completed, indicated the necessary adjustments to be made for satisfactory medical requirements throughout the state. He also spoke of the difficulties which would be encountered by the doctors now in service when they return to private practice and their medical re-education for same. They will come back with wonderful experiences but will find themselves out of tune with conditions in peacetime. Tuberculin testing in this county is now under way.

We are indebted to Dr. Hammes for a very enjoyable evening.

PSYCHOLOGISTS IN ARMY MAY OBTAIN COMMISSIONS

Psychologists serving in the Army as enlisted men are now offered an opportunity to obtain commissions as second lieutenants, upon applications made through their immediate commanding officers. Those considered qualified include those whose professional training and experience ranged from psychological testing and counselling to teaching in colleges and caring for mentally and physically handicapped cases.

Minimum education requirements are a bachelor's degree in psychology, sociology, or educational or industrial psychology.—*Science News Letter*, November 11, 1944.

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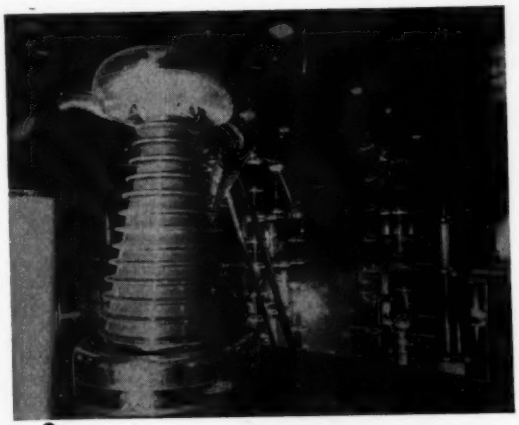

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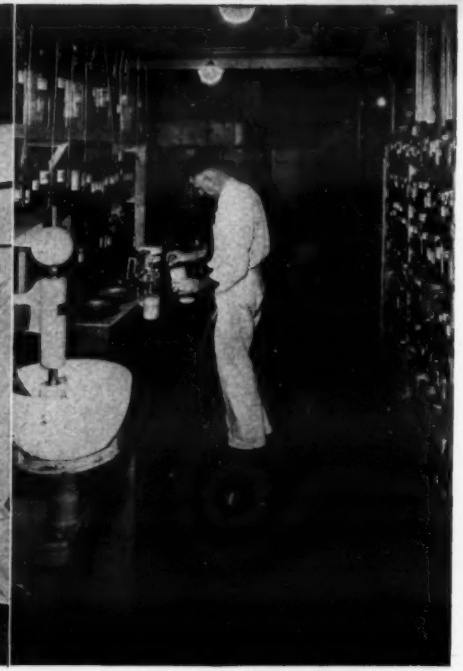

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Of General Interest

Dr. Harry Wilmer, of Minneapolis, was married on October 31, to Miss Jane Harris, daughter of Mr. and Mrs. Charles Harris, of Saint Paul.

* * *

Dr. Charles A. Aldrich, of Rochester, was elected president of the American Pediatric Society at the annual meeting held in Atlantic City this fall.

* * *

Captain John Earl, Saint Paul, is at present Chief of the Surgical Division of the 29th Station Hospital in North Africa.

* * *

Captain M. E. Janssen has been seeing plenty of action in North Burma. He recently has been getting a brief respite from action in India.

* * *

Dr. Harry Weber, of the Mayo Clinic, was made a member of the Executive Council of the American Roentgen Ray Society at their October, 1944, convention held in Chicago.

* * *

Dr. James M. Hayes, formerly of Minneapolis, and now located in Los Angeles, has been appointed Consulting Surgeon at the Santa Fe Hospital in Los Angeles.

Dr. Philip A. Klieger is now physician in charge of the Indian Hospital at Cass Lake, Minnesota. Dr. Klieger has been in the service in Oklahoma prior to his Cass Lake appointment.

* * *

Dr. Norman A. Wagner, who since his graduation from the University of Iowa in 1940, has been serving in the United States Coast Guard, has joined the Oliver Clinic in Graceville, Minnesota.

* * *

Dr. Peter D. Ward, superintendent of Miller Hospital, Saint Paul, was chosen president-elect of the American Hospital Association at the annual convention in Cleveland, Ohio. Dr. Ward will assume the post next year.

* * *

Dr. R. M. Hewitt, of Rochester, represented his alma mater, George Washington University, Washington, D. C., at the inauguration of Dr. Clemens Matthew Granskou as president of St. Olaf College in Northfield, Minnesota, on October 14, 1944.

* * *

Dr. Miland E. Knapp, clinical assistant professor of radiology and physical therapy at the University of Minnesota Hospitals was elected president of the American Congress of Physical Therapy at the annual meeting of the organization held recently at Cleveland.

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Dr. Theodore Bratrud was the speaker at the meeting of the Minnesota Pathological Society, of the University of Minnesota, held in the Medical Science Amphitheater on October 24. His subject was "Tumors and Hyperplasia of the Adrenal Glands."

* * *

Dr. W. F. Maertz, who has been in practice in New Prague, Minnesota, for many years, has opened offices in Saint Paul, where, with Mrs. Maertz, he expects to reside permanently. He is now occupying the offices of his son-in-law, Dr. C. W. Cain at 474 Hamline Avenue South.

* * *

Dr. Peter Ward, Superintendent of the Miller Hospital, Saint Paul, was elected president-elect of the American Hospital Association at its annual meeting in Cleveland, October 5, 1944. Doctor Ward follows Dr. Donald Schmelzer, a former superintendent of the Miller Hospital.

* * *

Dr. Sidney Miller, a Fellow in Mericine at the Mayo Foundation since July, 1942, has been ordered to active duty and commissioned a First Lieutenant in the Army Medical Corps. Dr. Miller graduated from Johns Hopkins in 1940 and interned at Harper Hospital in Detroit, Michigan.

* * *

Dr. Thayer Davis, of the Davis Clinic in Wadena, Minnesota, was a victim of one of the first accidents of the hunting season. While out after ducks near Almora, Dr. Davis's gun exploded, injuring his left hand so that it was necessary to amputate the third and fourth fingers.

* * *

Dr. Gordon B. New of Rochester was elected president of the American Academy of Ophthalmology and Otolaryngology at the annual meeting of this organization on October 12 in Chicago. Dr. William L. Benedict also of Rochester was elected executive secretary-treasurer, and Dr. Erling W. Hansen of Minneapolis was chosen to have charge of public relations.

* * *

Dr. Thomas Krezowski, Jr., was the guest of honor at a farewell party at the home of his sister, Mrs. Harold Hallin, in East Minneapolis, before leaving recently to start his internship at the County Hospital in Milwaukee, Wisconsin. Dr. Krezowski, a graduate of the Minnesota School of Medicine, was commissioned a First Lieutenant in the United States Army on August 24.

* * *

Dr. R. H. Picha, of Hopkins, Minnesota, closed his office on October 28 in order to report for military service at Carlisle Barracks, Pennsylvania, on November 15. After six weeks' training he will be transferred to Lawson General Hospital in Georgia. Dr. Picha applied for a commission in the army medical corps in September, 1942, but was rejected for a minor physical defect which has since been corrected.

* * *

Dr. Lauritz S. Ylvisaker, of New York City, an authority on cardiovascular diseases, has been made vice president and medical director of the Fidelity Mutual

Life Insurance Company in Philadelphia. Dr. Ylvisaker is well known in the Twin Cities, where he was in private practice for some years. During World War I he was resident physician at both the University of Minnesota and the Minneapolis General hospitals.

* * *

"Wartime Radiology and Peacetime Problems" was the subject of an address given by Colonel B. R. Kirklin at the joint meeting of the American Roentgen Ray Society and the Radiological Society of North America held in Chicago the latter part of September. Colonel Kirklin, who comes from Rochester, attended the gathering as personal representative of the Surgeon General of the United States Army.

* * *

Commander Edward D. Anderson, former Minneapolis pediatrician, now stationed at Parris Island, South Carolina, after almost two years of overseas duty, was Navy Day speaker at the exercises held at Northrop Memorial Stadium. In an interview Commander Anderson said that one of the most surprising medical angles of the war is the remarkable work done by young doctors without previous practical experience.

* * *

Announcement has been made of the engagement of Jean Margaret Legler, daughter of Mr. and Mrs. Frederick W. Legler, of Minneapolis, to Dr. Bradley W. Kusske, son of Dr. and Mrs. A. L. Kusske, of New Ulm. Dr. Kusske, who is a graduate of the medical school at the University of Minnesota, is now serving his internship at St. Joseph's Hospital in Saint Paul. A First Lieutenant in the medical reserves, Dr. Kusske will report for active duty next July.

* * *

Dr. Stanley R. Maxeiner of Minneapolis talked on the subject of "Applied Local Anesthesia" at the meeting of the Chippewa County Medical Society, Eau Claire, Wisconsin, Tuesday, October 31. On December 1 he will present a paper at the meeting of the Western Surgical Association in Chicago on "Hyperinsulinism Due to Islet Tumors of the Pancreas," with a report of a patient on whom a 70 per cent resection of the pancreas was done with removal of eight islet tumors.

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Lt. W. H. Johansen, MC, USNR, who reported for service October 18, 1943, was assigned to overseas duty a week later and has since been in the Southwest Pacific. Since March 1, 1944, he has been on a landing ship for invasion troops under the command of General McArthur and was in the recent invasion in the Philippines. He has seen several Minnesota physicians at the various points of landing, among them Capt. J. Lawrence Noble, Lt. Raymond Cochrane and Lt. Comdr. C. H. Mattson.

* * *

Dr. Nina Augusta Anderson, daughter of Mrs. John A. Anderson, Saint Paul, Minnesota, was married to Lt. Commander Harry Thomas Atkins, Medical Corps, United States Naval Reserve, in Germantown, Pennsylvania, on October 7. Dr. Anderson, who is a graduate of the University of Minnesota, is assistant professor of pediatrics at Temple University School of Medicine in Philadelphia. Commander Atkins is a graduate

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of Princeton University and the University of Cincinnati Medical School. He enlisted as a surgeon in the Navy in June, 1941.

* * *

Out of respect to and in view of the great interest endocrinology manifested by the late Dr. Max H. Hoffman, a group of his friends have established The Dr. Max H. Hoffman Memorial Fund, the purpose of which will be to continue research work in this field. Administration will be in the hands of the Dean of the University of Minnesota Medical School and head of the Internal Medicine Department of the School, and two physicians to be selected later. It is hoped that a minimum of $10,000 can be raised so that both a lectureship and a fellowship can be undertaken.

Contributions, which are tax exempt, should be sent to the Dr. Max H. Hoffman Memorial Fund, C. T. Hagman, Treasurer, First National Bank, Saint Paul 1, Minnesota.

* * *

Announcement has been made by Colonel W. C. Saffarrans, United States Infantry and commandant of a unit jungle training center in the South Pacific, of the award of a Legion of Merit Medal to Captain Herbert R. Gore, who was killed in a plane crash somewhere in the Solomon Islands. Captain Gore, who was in line for promotion when his death occurred, was in medical practice in Rochester, Minnesota, from 1939 until he entered the service in February, 1943. The medal was awarded for "developing ways and means of caring for the wounded under the most adverse conditions which resulted in the saving of many lives in combat."

* * *

Dr. E. C. Rosenow, who has gone to Pasadena, California, to engage in experimental work at the California Institute of Technology, was honored with a dinner before his departure given by his associates at the Mayo Foundation and Clinic in Rochester. The toastmaster was Dr. A. H. Sanford. The other speakers were Dr. D. C. Balfour, director of the Mayo Foundation, Dr. R. D. Mussey, chairman of the board of governors of the Mayo Clinic, and Dr. J. L. Bollman, who represented the laboratory society. Dr. Rosenow was presented with a medallion picturing Drs. W. J. and C. H. Mayo, pictures of the members of the laboratory society and a scroll signed by all the members.

* * *

Captain William E. Wellman, formerly of Lake City, Minnesota, who returned to this country last May after nine months of overseas duty, has been especially commended by Major General Frederick Gilbreath, commander of medical work in the South Pacific, for his studies in filariasis in the South Pacific, dealing with causes, prevention, and early diagnosis. The citation reads in part: "As a result of your efforts, two vital works were produced which have a profound effect on the care of patients afflicted with the ailment. Unquestionably, you have contributed materially to the battle efficiency of American troops in this theater of operations." Captain Wellman has been in service since December, 1941, and is now stationed at the O'Reilly General Hospital in Springfield, Missouri.